

Evaluating Combat Service Support Transformation for the Contemporary Operating Environment

**A Monograph
by
MAJ Scott P. Noon
U.S. Army**



**School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas**

AY 05-06

REPORT DOCUMENTATION PAGE				<i>Form Approved</i> <i>OMS No. 0704-0188</i>		
<p>The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>						
1. REPORT DATE (DD-MM-YYYY) 25-05-2006		2. REPORT TYPE MONOGRAPH		3. DATES COVERED (From - To) SEPT 2005-MAR 2006		
4. TITLE AND SUBTITLE Evaluating CSS Transformation for the Contemporary Operating Environment				5a. CONTRACT NUMBER		
				5b. GRANT NUMBER		
				5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) MAJ Scott Noon QM, USA				5d. PROJECT NUMBER		
				5e. TASK NUMBER		
				5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School of Advanced Military Studies 250 Gibbon Ave Ft. Leavenworth, KS 66027				8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Command and General Staff College 1 Reynolds Ave Ft. Leavenworth, KS 66027				10. SPONSOR/MONITOR'S ACRONYM(S) CGSC, SAMS		
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED						
13. SUPPLEMENTARY NOTES						
14. ABSTRACT This monograph evaluates the Combat Service Support (CSS) transformation initiatives against the framework of the Contemporary Operating Environment. This environmental construct provides the military planner a visualization of future conflicts and the imagined challenges in the operational environment. The hypothesis is that current logistics transformation initiatives will prepare most Army Combat Service Support Units for the challenges of future battlefields. A detailed discussion of terms and concepts in logistics, the Contemporary Operating Environment, and logistical lessons learned in Operation Enduring Freedom and Operation Iraqi Freedom set the stage for the analysis of transformational doctrine, organizational design, training, and material. The asymmetric threats and non-contiguous engagements of CSS units in Operation Iraqi Freedom help prove that the conventional battlefield construct is no longer the default setting for conflict. The monograph concludes that many transformational ideas have merit, yet there are still capability gaps in force protection and collective combat skills training for most support units. Recommendations include the creation and implementation of a Combat Service Support Training Center and renewed emphasis on personal and vehicular force protection equipment.						
15. SUBJECT TERMS CSS, DOTMLPF, Transformation, Contemporary Operating Environment, Joint Operating Environment, Sense and Respond Logistics, CSS Training Center, Echelon Above Brigade Logistics, OIF/OEF Logistics Lessons Learned						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)	(U)	63	19b. TELEPHONE NUMBER (Include area code) (913) 758-3300	

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

MAJ Scott P. Noon

Title of Monograph: Evaluating Combat Service Support Transformation for the Contemporary Operating Environment

Approved by:

Mark E. Solseth, COL, QM

Monograph Director

Kevin C.M. Benson, COL, AR

Director,
School of Advanced
Military Studies

Robert F. Baumann, Ph.D.

Director,
Graduate Degree
Programs

Abstract

Evaluating Combat Service Support Transformation for the Contemporary Operating Environment by MAJ Scott P. Noon, U.S. Army, 63 pages.

This monograph evaluates the Combat Service Support (CSS) transformation initiatives against the framework of the Contemporary Operating Environment. This environmental construct provides the military planner a visualization of future conflicts and the imagined challenges in the operational environment. The hypothesis is that current logistics transformation initiatives will prepare most Army Combat Service Support Units for the challenges of future battlefields. A detailed discussion of terms and concepts in logistics, the Contemporary Operating Environment, and logistical lessons learned in Operation Enduring Freedom and Operation Iraqi Freedom set the stage for the analysis of transformational doctrine, organizational design, training, and material. The asymmetric threats and non-contiguous engagements of CSS units in Operation Iraqi Freedom help prove that the conventional battlefield construct is no longer the default setting for conflict. The monograph concludes that many transformational ideas have merit, yet there are still capability gaps in force protection and collective combat skills training for most support units. Recommendations include the creation and implementation of a Combat Service Support Training Center and renewed emphasis on personal and vehicular force protection equipment.

TABLE OF CONTENTS

TABLE OF CONTENTS	iv
CHAPTER 1	1
Introduction	1
Logistics in Historical Context.....	8
Current CSS and COE Doctrine	10
CHAPTER 2.....	15
The Last Fifteen Years	15
Operation Enduring Freedom, Logistics Lessons Learned.....	18
Operation Iraqi Freedom, Logistics Lessons Learned.....	24
CHAPTER 3.....	33
What Defines Logistics Transformation?.....	33
The Doctrine of CSS Transformation.....	35
An Analysis of CSS Organizational Transformation	40
Training for CSS Transformation.....	44
Material Transformation Analysis.....	48
CHAPTER 4.....	55
Recommendations for CSS Transformation.....	55
The “Haves” and the “Have-nots” (Echelon Above Brigade Training Shortfalls).....	56
The Need for an EAB CSS Training Center?.....	57
Final Azimuth Check on Logistics Transformation	59
BIBLIOGRAPHY	63
Books.....	63
U.S. Government Publications	63
Papers and Monographs	64
Articles and Periodicals.....	65
Interviews and Briefings.....	65
Presentations.....	66
Miscellaneous	66

LIST OF ILLUSTRATIONS

Figure 1, Afghanistan	19
Figure 2, Gun Truck, 497th Transportation Company	52
Figure 3, Gun Truck, Vietnam-era	53
Figure 4, M1117 Armored Security Vehicle	61

CHAPTER 1

Introduction

The year is 2016 and First Lieutenant Wilson is leading a logistics convoy through the outskirts of Tabarka, Tunisia. His 14-vehicle convoy traveled from the port of Bizerte, Tunisia west through 100 plus kilometers of uncertainty. Fortunately, his unit has not encountered any of the Algerian based terrorists who have infiltrated the Tunisian border. His mission is to deliver supplies and required maintenance support items to the forward deployed combined arms battalion support area (CABSA) of his Future Combat System equipped Brigade Combat Team. A long endurance Tactical Unmanned Aerial Vehicle (TUAV) provides real time support during the entire convoy mission. The TUAVs are organic to his Brigade Support Battalion headquarters and controlled by soldiers at the Battalion Tactical Operations Center (TOC). The convoy has also moved exclusively under the cover of darkness. The Generation IV/V enhanced thermal/image intensification night vision devices worn by every member on the convoy enable their night driving. His company headquarters has been able to track his position via the network-enabled Global Information Grid and updated him with the latest intelligence and operational updates. His network connections also enable him to see rotary and fixed wing Close Air Support that is available, and he is confident that his organic armored security vehicles (M-1117A3) with direct and indirect fire capability can handle the local area threat. His soldiers have the same weapons as their infantry and armor counterparts with the appropriate optics and aiming devices/lasers. Their marksmanship, confidence, and level of training has been honed at home station and continues in theater with realistic collective training scenarios.

Soldiers arrive from their initial entry training locations with a greater familiarity and level of proficiency on their individual and crew-served weapons than they did in the early 21st century. Because the entire Army Non-Commissioned Officer Education System has been

overhauled, the NCOs have better developed as combat leaders and possess a greater understanding and capability in combat skills and battle staff functions through their professional development schools (The Warrior Course-formerly Primary Leadership Development Course, Basic and Advanced Non-commissioned officer courses).

1LT Wilson is able to track the progress of his convoy and communicate with all members of the march unit via secure radios that may be dismounted from the vehicle. The same radios are capable of beyond line of sight operation and voice communications with all headquarters in his task force is a reality. 1LT Wilson is more comfortable with the assigned mission because of his foundation in combat skills training during the Basic Officer Leader Course (BOLC) and because he has already run six convoys in Tunisia in the 30 days that his Brigade Combat Team has been on the ground. He is confident that he can handle a diverse range of tasks as he already has experienced a great deal in his two-year career. Wilson's company commander is a veteran of Operation Iraqi Freedom and Iran and now serves as a well-grounded mentor and trainer for the junior officers in the company. 1LT Wilson will be sorry to see her leave for Advanced Civil Schooling at Princeton followed by the Command and General Staff College next month. Accelerated promotions to Major are now the norm. The entire Army personnel system and the Army Forces Generation Model are designed to deal with the continuous deployments while providing incentives and rewarding high quality performance with early promotion. Ongoing course corrections to the life-cycle management program are successful in maintaining cohesive teams, allowing soldiers to stay at a duty station for a longer period, and the soldiers are staying to duty positions for a longer period of time, which enhances unit effectiveness.

1LT Wilson receives an e-mail message from the Forward Support Company Commander (to whom he is delivering the supplies) that the link-up location is changed and that the icon on 1LT Wilson's Force XXI Battle Command Brigade and Below (FBCB2) monitor will reflect the most accurate and timely information. Every vehicle has at least two soldiers in it and

the crew compartments are specifically designed and armored to protect the occupants from the most likely threats. For seven of the vehicles in the convoy, there is a soldier to man the crew served weapons. Every tactical vehicle designed for road usage in the BSB is designed or modified from the ground up to defeat Level IV Improvised Explosive Devices, and will defeat small arms direct fire up to 12.7mm.¹ Following the successful nighttime link-up and delivery of supplies and materials, 1LT Wilson loads the required items for retrograde.² Based on the UAV and sensor detection of a potential terrorist ambush, he is able to alter the course of his return leg. While this route is slightly longer, he is able to expeditiously disseminate this new route to the other vehicles as well as his higher headquarters, and they can see the changes on their FBCB2 screens as well. While avoiding the identified threat, the convoy is still prone to the fog and friction of the modern battlefield. When a HEMMT-LHS (Heavy Expanded Mobility Truck-Load Handling System) went off the road into some soft sand and got stuck near a village, the convoy is forced to stop in effort to pull it out. When the TUAV identifies insurgents/terrorists rallying in a nearby courtyard, the UAV controller passes the information to 1LT Wilson's driver. The BSB TOC alerts the nearest rotary wing attack asset of a possible mission. 1LT Wilson disseminates the pertinent threat information to every member of the convoy via personal radios, and repositions his armored security vehicles to the most likely avenues of approach. After conversing with the Armed Reconnaissance Helicopters (ARH) who were 15 minutes out on the secure fires net, 1LT Wilson develops a course of action that will buy the convoy some time to pull out the HEMMT and get back on the road. Just the presence of the ARHs is enough to discourage this band of insurgents that disband without engaging, and the HEMMT is back on

¹ 12.7mm is equal to .50 caliber and on the upper end of what is considered a mobile weapon. The DSHK (pronounced DISH-KA) is a common Eastern-block manufactured heavy machine gun that the vehicles armor is designed to defeat. Often found mounted in pickup trucks termed "technicals", the DSHK is a formidable weapon.

² Retrograde items are loaded on a flat-rack system that the HEMMT-LHS can pick up quickly without the need for a forklift. The HEMMT-LHS can pick up a flat-rack that weighs 20,000lbs.

solid ground and the convoy again picks up its course with the Armored Security Vehicles maintaining vigilant rear security.

1LT Wilson and his 42 soldier convoy return to their Forward Operating Base in Bizerte after a 12-hour mission tired, but otherwise unscathed. The mechanics back at the Bizerte Forward Operating Base plug in the diagnostics for the vehicles to determine what services are required to keep the BSB trucks running. They replace a few parts that have not yet failed, ensuring the vehicles remain full mission capable (FMC). The unit begins to prep for the next convoy operation that may be a combat or sustainment replenishment operation, or perhaps something more humanitarian assistance oriented. The non-governmental organization liaison officer has just returned from the Civil Military Operations Center and the Battalion staff is conducting the Military Decision Making Process for the next mission. 1LT Wilson knows that he is capable of planning and executing a wide variety of missions. Enabled by his soldiers, equipment, and training, this young logistics leader has a great deal of potential.

This vignette should not be an unrealized utopia. While today the concepts are somewhat beyond the scope of many Combat Service Support units, it is a short examination of what should be around the corner for United States Army logistics forces. Situational understanding will enable exceptional situational awareness. If logistics transformation is successful, the United States Army will have this capability in its Combat Service Support Force. For 1LT Wilson to succeed on his tactical mission, the transformation must affect the entire Army. As discussed, the Generating Force/Institutional Army revitalized their training base and education systems. At the strategic and operational level, systems that connected all logisticians from Defense Logistics Agency to the Brigade Support Battalion Support Operations Officer were functioning to deliver the right supplies and parts to the Combined Arms Battalion. This vignette is quite different from what most logistics units faced during the initial stages of both Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). Generally organized and equipped under “Cold War” standards to fight behind the forward line of troops, conventional logistics units at the Division

level and below where only “doctrinally capable” of defeating a level one threat without the assistance of a response force.³ While many units faced difficult circumstances in OIF/OEF, none gained the exposure of the 507th Maintenance Company from Fort Bliss, Texas. An Echelon Above Corps (EAC) unit whose primary mission was the maintenance of Patriot missile systems and radar was temporarily attached to the 3rd Infantry Division’s 3rd Forward Support Battalion. The company suffered tremendous losses in personnel and equipment. The 507th lost eleven soldiers, seven were captured, and approximately half of their vehicles and equipment were destroyed or abandoned. Because of their presupposed place on the battlefield would be 90-120 kilometers behind the Forward Line of Troops in the Corps rear area, they did not possess the proper force protection equipment and training to conduct the tasks that they were assigned and forced to deal with. Their actions reflect that if something can go wrong it will. Unfortunately, in this case the result was fatalities, the capture of U.S. soldiers, and strategic information operations repercussions.

A logistics transformation is concurrent with an overall Army force transformation. Modernization of concepts, doctrine, and equipment are currently being evaluated and implemented. *On Point*, a study about the U.S. Army in the initial stage of OIF suggests:

The CSS difficulties cross all aspects of Army operations-doctrine, organization, training, material, leader development, personnel and facilities (DOTMLPF). From the recent shift to “just-in-time” logistics to the training and equipping of CSS soldiers and units, the CSS community and the Army must rethink how they conduct operations. The current system emphasizes efficiency over effectiveness-from parts and supply distribution to the physical equipping of CSS units. In combat however, effectiveness is the only real measure of success; many CSS units struggled to perform their mission due to “savings” realized in recent changes in organization, equipment, training, resources and doctrine.⁴

³ Department of the Army. 2001. *FM 3-90, Tactics*. APP E. See page 17 for further discussion on Threat Levels.

⁴ Fontenot, Gregory COL Ret, E. J. Degen LTC, and David Tohn LTC. 2004. *On Point, the United States Army in Operation Iraqi Freedom*. Fort Leavenworth, KS: Combat Studies Institute Press. xxviii.

A great deal of effort and study is currently underway to determine how to rectify these shortcomings. There are numerous initiatives and “focus areas” that the Army has identified for improvement. The Army Deputy Chief of Staff for Logistics (G-4) has chosen four focus areas for improvements across the logistical spectrum. The G-4 published these focus areas in an attempt to incorporate all of the lessons learned from Operation Iraqi Freedom and Operation Enduring Freedom to better equip the logisticians of the future. The four focus areas are:

1. Connect Army Logisticians
2. Modernize Theater Distribution
3. Improve Force Reception
4. Integrate the Supply Chain

By finding better ways of doing business in these four areas “guarantees material readiness for the men and women who defend our great nation.”⁵ Another study, published by Rand in 2003, identifies five strategies the Army should implement for a successful logistics transformation. Somewhat in line with the G-4’s focus areas, their strategies are:

Demand reduction-platform and force efficiency

Modular maneuver unit support

Distribution-based logistics

Improved Deployment Capabilities

Forward Positioning⁶

While the authors of this study did not have the results of Operation Iraqi Freedom upon which to base their conclusions, their ideas on a logistics transformation strategy still have merit.

⁵ Department of the Army. *We’ve got you Covered, Army Logistics, Delivering Material Readiness to the Army*, April 2005, Washington DC.

⁶ Peltz, Eric, John M. Halliday, and Steven L. Hartman. 2003. *Combat Service Support Transformation, Emerging Strategies for Making the Power Projection Army a Reality*. Santa Monica, CA: Rand Corporation.

The importance of developing and sustaining a “joint and expeditionary Army with campaign capabilities” is critical to the future successes of the United States Army.⁷

The primary purpose of this paper will be to analyze these and other initiative areas of logistics transformation to determine if the United States Army is properly preparing (logistically) for the uncertainty of the Contemporary Operating Environment. This paper will begin with a short evaluation of logistics in general historical terms. Discussion of the Contemporary Operating Environment (COE) follows the history. The basis for discussion and definitions of the COE is current Army doctrine and other written products from the joint community. The reader’s understanding of the COE is essential, as this is the basis for argument and discussion throughout the remainder of the paper. The second chapter of the paper identifies the changing nature of conflict from a recent historical perspective, and continues with a general logistics analysis of Operation Enduring Freedom and Iraqi Freedom. Highlighting key logistical lessons learned and specific theater issues will further refine how the CSS force needs to transform. The framework used for the evaluation of CSS Transformation in chapter three is a partial DOTMLPF (doctrine, organization, training, material, leader development, personnel, and facilities) analysis. The analysis of doctrine, organization, training and material (DOTM), in respect to CSS Transformation, are included in this monograph. This acquisition community framework is a popular method of evaluating a whether a material or nonmaterial approach is required to fill the capability gaps identified in a Functional Needs Analysis.⁸ The analysis and discussion of the DOTM in chapter three leads the reader to a number of recommendations and proposals in chapter four. If implemented, the recommendations and proposals in chapter four will lead to a more efficient and effective CSS force. Taking all of the DOTM factors into account and

⁷ The Army Campaign Plan. Accessed from: http://www.army.mil/thewayahead/acppresentations/4_3.html on 6 Jan 06.

⁸ Department of Defense. 2003. Defense Acquisition Acronyms and Terms. Defense Acquisition University. Fort Belvoir, VA. B-46.

evaluating the most up-to-date information, doctrine, current levels of funding and material fielding, Army CSS transformation should continue with minor course corrections with a greater focus on training and force protection equipment.

Logistics in Historical Context

Battlefield logistics is a challenge known since the beginning of warfare. Defined by Martin Creveld in *Supplying War*, logistics is the “practical art of moving armies and keeping them supplied.”⁹ From foraging and plundering in biblical times, to providing fuel for modern attack helicopters, the warfighter requires certain items for sustainment and survival. This paper will identify and discuss the most current methods of providing logistics to United States Army combat units and evaluate the future and what challenges lie ahead. As the world’s sole superpower, the United States military establishment is capable of action and force projection that lesser countries cannot afford or produce. With a budget of over \$441 billion this fiscal year (2006), and congressionally approved supplemental funds for the conduct of ongoing combat operations in Iraq and Afghanistan, only 14 nations in the world have a larger Gross Domestic Product (GDP) than what the United States spends on defense alone.¹⁰ While the U.S. defense budget is astronomical in comparison to that of other countries, it is only four percent of the nation’s GDP. Maintaining this capability is essential to the National Security and National Military Strategy of the United States. The security situation for the next 15-20 years is somewhat uncertain, but U.S. military planners are preparing for these challenges with doctrine based on the contemporary operating environment or joint operating environment. The United States may not see a true peer competitor, but this fact alone does not ensure the national safety or

⁹ VanCreveld, Martin. 1977. *Supplying War, Logistics from Wallenstein to Patton*. Cambridge University Press, Cambridge, UK. 1.

¹⁰ Global Economy; GDP for 2000 and 2003. Accessed on October 26, 2005. Internet on-line. Available from http://www.geohive.com/global/geo.php?xml=ec_gdp1&xsl=ec_gdp1.

interests. In this “operational environment,” military forces will face a variety of threats and enemy capabilities. By examining doctrine, organizations, training, material, leadership and facilities (DOTMLPF) the U.S. Army can better determine how to face these threats and plan to defeat/deter potential adversaries.

Logistics in this contemporary operating environment (COE) will also be important. As military forces become more capable and empowered through technology, they will likely still consume ammunition, fuel, water, and food (for the foreseeable future). Ensuring the combat soldier has what he or she needs is the responsibility of the logistics infrastructure. Managing this infrastructure becomes exponentially more difficult the longer the distances become.

Expeditionary capabilities are a major element of the overall Army transformation. The ability to deploy quickly and operate far from national boundaries is an important element of this strategy. The capability to deploy and sustain these potentially lighter and expeditionary forces will be critical. Emerging U.S. doctrine states that Brigade Combat Teams may be responsible for maintaining a 50-kilometer by 50-kilometer battlespace.¹¹ Combat developers must understand how logistics forces are enabled to conduct their missions of the future. Some questions this monograph will address are listed below:

- Are logistics units above the Brigade Combat Teams getting the training that they need at home station and the ground maneuver Combat Training Centers (National Training Center, Fort Irwin, CA; Joint Readiness Training Center, Fort Polk, LA; and the Combat Maneuver Training Center, Hohenfels, Germany)?

- Do facilities exist to facilitate the required training at the unit’s home station (realistic convoy, maneuver, and perimeter defense live fire ranges)?

¹¹ Department of the Army, *Unit of Action White Paper*. Fort Leavenworth, KS. 2003

-As force developers design future logistics units, are they incorporating the lessons learned through the Stryker Brigades, and other combat experiences/deployments?

GEN Schoomaker, the current Chief of Staff of the Army, in 2003 directed that all units in the Army must qualify with their assigned weapons twice a year and conduct additional familiarization and marksmanship training to include a collective unit training annual live fire event.¹² Previously, CSS units only qualified with their weapons once a year and they did not have a Department of the Army requirement to conduct an annual live fire event. Are units getting the appropriate increases in training ammunition? Are logistics units receiving the proper material and warfighting equipment that they need to “survive to sustain,” like radios, night observation devices, small arms, crew served weapons, armored vehicles, etc.? While the Army has learned a great deal since the beginning of OIF (March 2003) and implemented a great number of programs to assist the logistician, are these reactions and programs sustainable or appropriate for other threats in the COE? The level of funding priority given to Combat Service Support organizations and equipment will answer many of the stated questions; however, logisticians can enable their own progress through well-defined doctrine, organizational structure, sound leadership decisions, and the preparation and conduct of useful individual and collective training.

Current CSS and COE Doctrine

Based on Field Manual (FM) 4-0, Combat Service Support, as well as a host of other doctrinal guidelines, Army logistics units historically operated with significant amounts of available references. Well-developed and staffed joint publications, field manuals, mission training plans, and unit standard operating procedures are useful tools to guide the leader and

¹² Department of the Army Pamphlet 350-38, *Standards in Weapons Training*, Paragraph 9-2. FY 2006

follower alike. CSS doctrine is further discussed in chapter three of this paper, but to date has not fully captured the dynamics of operating in high threat environments so common to the COE.

Doctrine for Stability and Support Operations is mentioned only briefly in Chapter Three of FM 4-0, but the manual does not go into discussion or explanation of what unique circumstances may be encountered during these types of operations.¹³ Prior to 2001, most doctrine focused on the linear battlefields of large-scale conventional conflicts such as Western Europe or the traditional NTC rotation construct of large armored formations and engagements.

What is the COE that will force a change in how logisticians operate on the expanded, uncertain battlespace in future conflict? Field Manual 7-100 is the capstone manual for Opposing Force (OPFOR) doctrine and was published in May 2003. Published by the Deputy Chief of Staff for Intelligence at the Army's Training and Doctrine Command it offers the following definition for the COE:

The COE is the overall operational environment that exists today and in the near future (out to the year 2020). The range of threats during this period extends from smaller, lower-technology opponents using a more adaptive, asymmetric methods to larger modernized forces able to engage deployed U.S. forces in more conventional, symmetrical ways. In some possible conflicts (or in multiple current conflicts), a combination of these types of threats could be especially problematic.¹⁴

The purpose of the manual and the discussion on COE is to prepare U.S. Army forces for the future threat environment. Its broad context and applicability to a variety of circumstances are purposeful. The Department of Defense changed its focus from a threat based force to a capabilities based force. The vast array of missions and tasks accomplished since the fall of the Iron Curtain has been anything but conventional (Bosnia, Kosovo, Somalia, Haiti, Afghanistan, Rwanda, Iraq, etc.). The manual goes on to list several "constants" or common threads that

¹³ Department of the Army, FM 4-0, *Combat Service Support*. 29 August 2003. Washington, DC.

¹⁴ Department of the Army. 2003. Field Manual 7-100, *Opposing Force Doctrinal Framework and Strategy*. Iv.

further define the COE. For example: the United States is not likely to have a peer competitor until 2020 or beyond; non-state actors will play an important role in any regional conflict-as combatants or non-combatants (a current issue with Al-Queda); and all combat operations will be significantly affected by a number of variables in the environment beyond simple military forces.¹⁵ Further refining the COE, FM 7-100 goes on to state that in addition to the “constants” mentioned above, there are eleven critical variables that may be injected into the current situation or training scenario. In different situations or environments, different variables will be more important than others. The variables are:

- Nature and Stability of the State
- Regional and Global Relationships
- Economics
- Sociological Demographics
- Information
- Physical Environment
- Technology
- External Organizations
- National Will
- Time
- Military Capabilities¹⁶

Joint Forces Command (JFCOM) fully embraced the concept of the COE and adapted many of the Army concepts and ideas into its own thinking and potential future doctrine. JFCOM renamed COE as the Joint Operating Environment or JOE in 2003. JFCOM held a conference on

¹⁵ Ibid, iv.

¹⁶ Ibid, v.

the JOE in 2003.¹⁷ A coordinating draft on the JOE is posted on the Joint Electronic Library website and is used as a framework to develop future threat profiles.¹⁸ In this environment, member units should expect to work and integrate fully with their joint and interagency partners. Understanding that the Army will operate in a joint and interagency environment in the future both COE and JOE are relevant terms for the operational environment of the future. The use of both terms in a wide variety of sources and readings leads one to believe that the terms are interoperable. The simpler term-operational environment is also widely used. Since there is no official/published joint doctrine on the JOE, the term COE will be used to discuss the primarily land based Army operating environment of the future.

This discussion on COE is important because it lays the theoretical threat framework for all future decisions that range from training events to major weapon system acquisitions. Combat developers in Army logistics must ensure that any doctrine, equipment, or unit organizations can operate within this wide-ranging COE framework. Additionally, OIF proved that preparing logistics units for combat of any significant scale was primarily an economy of force mission (not fully resourced or trained). The initiatives to deal with these issues were adaptive in nature (up-armor of vehicles, rapid-equipping force, rapid fielding initiative, etc.). Were these simply automatic reactions to the current problem, and has the Army identified and rectified systemic problems facing logistics units with transformation for combat in the COE? Certainly, if properly implemented and resourced, the four focus areas of the Department of the Army G-4 will enhance logistics efficiency and get the required equipment and supplies to those who need it in a more expeditious manner. Ensuring the logisticians can deliver the tactical sustainment without

¹⁷ United States Joint Forces Command. 2003. USFCOM, Army Defining the Joint Operation Environment. Accessed from: <http://www.jfcom.mil/newslink/storyarchive/2003/pa060903.htm> on 15 DEC 05.

¹⁸ Joint Chiefs of Staff, Joint Electronic Library. 2006. *The Joint Operational Environment-Into the Future*. Accessed from: <http://www.dtic.mil/futurejointwarfare/references.htm>

significant loss of their own capability will always be a challenge, and the uncertain COE forces leaders to make decisions that involve trade-offs.

The next chapter will reinforce the importance of comprehending and implementing the COE doctrine and framework. The following pages will detail the past 15 years of Army history and specifically focus on logistical lessons learned during Operation Enduring and Iraqi Freedom. Because the Army does not wish to make similar mistakes in future campaigns and operations, this evaluation of recent conflict is important. Since both of these conflicts are ongoing, the Army can also use them as a test bed for transformational capabilities.

CHAPTER 2

The Last Fifteen Years

Following Desert Shield/Desert Storm, the Army experienced a massive drawdown in force structure. The number of active duty divisions went from 18 to 10. The “peace dividend” realized by the Clinton administration led to a major reduction in the end number of the United States Army. The number of active duty soldiers went from 765,000 in Fiscal Year 1990 to 491,000 in Fiscal Year 1996.¹⁹ As the U.S. began to discover beginning with Operation Provide Comfort in northern Iraq (support to Kurdish refugees following Desert Storm), quickly followed by Somalia, was that the military is the most capable and ready tool to handle peacekeeping, peace enforcement, and humanitarian assistance type operations. In a period of decreasing manpower and budgets, the number of operational deployments increased dramatically. The Army especially was gaining a great deal of experience and expertise in deployment logistics, working with other services, coalition partners, and handling complex cultural, ethnic, and international relations type problems. The common yet unattributed quote is that “Peacekeeping is not a soldier’s business, but only a soldier can do it.” Before Stability Operations became a common task on many units mission essential task lists, soldiers struggled with missions like establishing local governance, developing free market zones, or building schools. All of these events and global issues helped establish the Contemporary Operating Environment framework. The Army did its best to prepare the entire force for such operations and incorporated pieces and lessons learned into the Combat Training Center scenarios. While the Army did train some of these tasks, they did not stop the traditional/conventional high intensity conflict training that dominated most of the unit’s training calendars. Special Operations Forces and Light Infantry

¹⁹ Department of the Army. Department of the Army Historical Summary, 1990 through 1996. Accessed on 9 DEC 05 from <http://www.army.mil/cmh/books/DAHSUM/1996/ch04.htm>.

units generally spent more time training low intensity tasks than heavy units. Logistics doctrine and units at the division and below were traditionally focused on their next Combat Training Center rotation, or for a specific deployment that was scheduled.²⁰

Funding among CSS units in the Divisions varied based on a variety of factors, but most units focused their efforts on CSS tasks and training.²¹ Soldier, or skill level one tasks were traditionally trained in garrison and units exercised collective combat skills training in a field environment. There was also a wide disparity as to the fielding and issue of new equipment to the Division Support Commands. For example, the Department of the Army Master Priority List (DAMPL) Basis of Issue Plan for the Family of Medium Tactical Vehicles had the 82nd Airborne Division and 101st Airborne Division (Air Assault) receiving their new trucks in 1997, yet the 3rd Infantry Division (also a member of the 18th Airborne Corps) did not receive their trucks until late 2001. As one might expect, weapons, night vision, optics, and other modernizations were less expeditious, if issued at all, in CSS units compared to the combat arms. In a November 2005 discussion at the School of Advanced Military Studies, a senior Army general officer relayed that the Active and Reserve components would not complete the fielding of Interceptor Body Armor with Small Arms Protective Insert Plates until 2047! From a force protection standpoint, this fact reinforces the notion that CSS forces would fight on a conventional battlefield construct with minimal rear area threat. This also illustrates the discouraging level of emphasis placed on force protection for Active and Reserve component CSS forces who would receive their body armor sometime in 2030-2040.

Although concepts and threats for the COE emerged in the late 1990s, the focus of the acquisition and logistics communities did not sufficiently discuss combating some of these

²⁰ After several months in Bosnia and Kosovo, the Army published rotation schedules to enhance predictability.

²¹ CSS tasks and training refer to MOS specific training; for example fuel sampling and gauging techniques for a petroleum specialist, or training a mechanic on the installation of a new part or assembly.

emerging threats. CSS units were traditionally last to get the newer equipment, as they were supposed to be physically behind the maneuver forces in combat and the Combat Training Centers. They were still only doctrinally able to defeat a level one threat in the Brigade or Division rear areas.²² Various tactics, techniques, and procedures were developed and trained to help the CSS units augment their security. In a division rear, a combined arms tactical combat force (TCF) of a company team defeats level three threats.²³ In training, this force was typically not task organized or assigned. Maneuver training for combat arms units took priority. While not as critical for Operation Enduring Freedom based on the threat, the requirement for a TCF or equivalent in Operation Iraqi Freedom was quickly realized. In the initial combat phase of OIF, the Coalition Forces Land Component Command (CFLCC) committed its theater reserve to LOC security after the 3rd Infantry Division bypassed many of the major urban areas. The 2nd Brigade, 82nd Airborne Division's mission was to secure the major ground lines of communication from the Kuwaiti border all the way to An Najaf which would allow V Corps, the CFLCC main effort, freedom of maneuver and sustainment. This Airborne Brigade Task Force covered over 250km of roads.

The next chapter provides a brief historical overview of both Operation Enduring Freedom and Operation Iraqi Freedom. While not meant to serve as a conclusive list, several logistical lessons learned are presented to identify some of the key issues and capabilities addressed in logistics transformation. The chapter will also focus on what the combat training centers are currently doing to help units prepare for their missions overseas and what lessons they are learning/re-learning. The purpose of analyzing these lessons will be to determine if the

²² In accordance with FM 3-90 Appendix E, a level one threat is a small enemy force that can be defeated by CS or CSS units in the rear areas or by the perimeter defense of a base defense or base cluster. A level two threat is an enemy force that can be defeated by rear area forces when augmented with a response force, and a level three threat is beyond the defensive capability of the base defense or base cluster and any local reserve or response force.

²³ Ibid, E-63.

logistics transformation initiatives are on the right track to make the CSS units in the modular and transformed force even more effective across the entire operational continuum.

Operation Enduring Freedom, Logistics Lessons Learned

Following the tragic events of September 11, 2001, the United States military knew that the future would be different (for a long time). Logisticians immediately realized that sustained combat operations would be difficult in the mountainous, land-locked country of Afghanistan. Securing an Intermediate Staging Base in Uzbekistan was a key strategic objective that facilitated initial combat operations and the buildup of combat power. Initially, a company from the 528th Special Operations Support Battalion (Airborne) conducted CSS in Uzbekistan. As the force package in Uzbekistan grew (conventional, SOF, coalition, joint), the operation rapidly outgrew/outpaced the 528th's CSS capability. The initial Special Forces A-teams that entered Afghanistan relied primarily on airdrops and helicopters for logistical support, and often bought whatever they could from the economy to sustain themselves and the Northern Alliance fighters with whom they collaborated. With conventional units arriving in larger numbers and friendly forces occupying and operating out of bases in Afghanistan, the need for greater logistical infrastructure was required. The 507th Corps Support Group Headquarters with a Corps Support Battalion deployed from Fort Bragg, North Carolina in December 2001 to manage the Karshi-Khanabad (K2) Base Camp and provide CSS to the rapidly expanding area of operations. Varied equipment such as Force Provider tentage, generators and environmental control units/heaters became "hot" commodities in the fast approaching winter of Uzbekistan.

Following the early Special Operations Forces (SOF) successes in the country, additional forces and logistics began to arrive in theater via strategic airlift (primarily C-17). Upon the ousting of the Taliban forces, joint Army and Air Force teams established the two primary in-country reception nodes at Bagram Air Base in the northeast portion of the country (50 miles NE of Kabul), and at Kandahar Airport in the south-southeastern portion of the country.



Figure 1, Afghanistan²⁴

In addition to the Coalition SOF units operating throughout the country, large-scale conventional units began to arrive in country in late 2001-early 2002 with a Brigade Combat Team from the 10th Mountain Division, the 15th and 26th Marine Expeditionary Units, and replacing the Marines in the south was the 3rd Brigade, 101st Airborne Division.

While early arriving CSS units faced challenges they had never before encountered, they were primarily operating from static facilities. While some units did self-deploy/drive to establish forward operating bases, or conduct resupply of customer units, most logistics functions were accomplished through the use of strategic airlift (into theater). Units garrisoned in outstation Forward Operating Bases (FOBs) relied heavily on rotary and intra-theater airlift for many CSS functions.²⁵ The poor road infrastructure, exceptional distances as well as the threat of direct

²⁴ Accessed from <http://www.cia.gov/cia/publications/factbook/geos/af.html> on 4 DEC 05.

²⁵ All supplies that were high value and pilfer able such as mail, ammunition, and class IX repair parts were primarily moved via air.

contact with insurgents, bandits, or unfriendly warlords drove the coalition to this logistical course of action.

The Center for Army Lessons Learned Combined Arms Assessment Team's Initial Impressions Reports are very valuable in diagnosing and reporting key lessons learned. They recorded and published their reports in effort that future units would not make some of the same mistakes, and that future units would arrive better informed about the conditions in theater for their upcoming deployments. The team that published the September 2002 report focused on a variety of CSS lessons learned that ranged from supporting SOF forces to the troubles and challenges of establishing the required logistics automation tools in an austere operating environment with limited communications bandwidth. Another noteworthy challenge that is still unresolved as of this writing is who determines the quality of life standards for Army units in a deployed environment.²⁶ Typically, most commanders will want more amenities and support for their soldiers if it does not greatly affect the accomplishment of their own mission. In OEF there was initially great confusion as to who would provide some basic life support steps and to what level these base camps would be resourced. In time, many of these requirements would be contracted out to commercial companies, but early in the deployments the logistical units were stuck with the anticipation that they would provide the needed mission essential CSS items as well as construct, maintain, and provide an infrastructure for combat units to fall in on.

The primary provider for Army/Joint CSS on the ground in Afghanistan was/is two Army logistics battalions. A forward support battalion has operated logistics in the south (out of Kandahar), and a Logistics Task Force (typically a Corps Support Battalion or Main Support Battalion with augmentation) has supported the north (from Bagram). A joint logistics command was established in early 2002 and its organization is based around a Division Support Command

²⁶ Center for Army Lessons Learned. 2002. *Army Central Command CAAT Initial Impressions Report*. Chapter 6.

Staff (and commanded by an O-6) with augmentation primarily from the Air Force for assistance with the airlift mission and asset visibility. The 377th Theater Support Command provides the theater logistical architecture and infrastructure to plug into (Standard Army Management and Information Systems-STAMIS, oversees theater logistics policy and accountability), and they operated primarily out of Kuwait, with eventually a small forward presence in Uzbekistan.

As the country became more stable and secure, the availability of host nation and contract support became more viable. The security environment soon enabled the contract use of transport of almost anything via host nation trucks. These “jingle trucks” (the U.S. equivalent of a tractor trailer with a flatbed trailer, or large commercial payload type trucks) were highly decorated and painted host nation vehicles. These host nation trucks enabled the logistics units to stay off the roads yet still transport such critical CSS items as bottled water, food, fuel, and other vehicles not capable of self-deployment such as forklifts to forward operating locations. While the service was not always as fast as what the Coalition would expect, they proved generally reliable. The Defense Energy Supply Center was able to contract bulk fuel from Pakistan and transport it via host nation truck to both Kandahar and Bagram. The LTFs would then collect requirements from Forward Operating Bases and contract move the fuel to these other bases as required (Orgun-E, Jalalabad, Asadabad, Khowst, Skhin, Gardez, etc.). The initial capability for bulk fuel storage was wholly inadequate. Based on the current doctrine and unit organizations of the time, the Supply Company in a light Forward Support Battalion’s Petroleum section only had the capability to store 60,000 gallons of fuel on the ground (in 10,000 gallon bags). As these soldiers were responsible for establishing the primary fuel farms for the entire country-this quickly proved to be inadequate. The 102nd Quartermaster Company (DS Petroleum) deployed from Fort Campbell, Kentucky to establish the 1.5 million gallon fuel farm in Bagram. In Kandahar, a similar system was established (eventually reaching one million-gallon capacity). The fuelers on

the ground found themselves performing a wide variety of tasks for which they had not specifically trained. Refuel of Air Force aircraft; hot refuel²⁷ of Army aircraft and the operation of such a large fuel farm (with 50,000 and 210,000-gallon fuel bags/blivets) were not within the doctrinal mission of these FSB soldiers. Again, because of the logistics soldier's adaptability and mission focus, they were able to work through the challenges and apply innovative and adaptable logistics solutions. Colonel Wilson Rutherford and MAJ William Brame use the term "brute force" logistics in their article about the challenges of VII Corps in Desert Shield/Desert Storm.²⁸ They use this phrase to define how the soldiers and supporters in VII Corps sustained the deployment, movement to their Tactical Assembly Area, and the provided the requisite CSS during the buildup and actual combat phase of Desert Storm. This term certainly is applicable to the operational environment of Afghanistan and the challenges tackled by early arriving logistics units.

MAJ Lance Curtis has a yet unpublished article about his experiences as a Company Commander in the 626th Forward Support Battalion of the 3rd Brigade, 101st Airborne Division which was deployed to Kandahar in FEB 2002. His company had a Modified Table of Organization and Equipment (MTOE) strength of 105 personnel (Headquarters and Alpha Company). He deployed with 202 personnel and by May 2002 his numbers had grown to 271.²⁹ His organic elements and attachments were required to perform the wide and increasingly diverse variety of CSS tasks that his unit was typically/doctrinally not required to accomplish. From mortuary affairs, water production and distribution, laundry and shower operations, establishing a

²⁷ "Hot refuel" is the common term for refueling a vehicle, aircraft, or helicopter, while the engine is running.

²⁸ Rutherford, Wilson COL. and Brame, William MAJ. 1993. Brute Force Logistics. *Military Review*. P. 61-69.

²⁹ Curtis, Lance, MAJ. 2003. *Support till you Bleed*. Unpublished. MAJ Curtis is a personal friend of the author and provided this article that was prepared for submission to a professional logistical publication.

theater petroleum laboratory, to running an Ammunition Supply Point for the entire base and coalition forces (FSBs are only manned and equipped to run Ammunition Transfer Points), HQ/A 626th FSB exercised their own version of innovation and brute force to accomplish the mission.

As recently witnessed in the Balkans, the availability and willingness of civilian contractors to participate in the LOGCAP (Logistics Civilian Augmentation Program) program and other contracting programs significantly lightened the load for CSS planners and units on the ground. A host of U.S. and international contractors provide a multitude of support functions on the ground in Afghanistan today. The capability grew slowly yet incrementally as the security situation improved. The Army Material Command's Operations Support Command (the managers of the LOGCAP program) created statements of work and contracted CSS capabilities were up and running by early 2002. Many services and activities are contracted. Examples of such contracted services include dining facility operations, direct support tactical vehicle maintenance, air and ground supply support activities, infrastructure and base camp construction and maintenance (electrical, environmental, trash, etc.), physical fitness facility maintenance, and retail fuel operations are just a few of the services currently performed by contractors on the ground in Afghanistan and surrounding countries in support of OEF.

While OEF presented many logistical challenges, the size and scope of the deployment was not like Desert Shield/Desert Storm. With never more than 20,000 U.S. soldiers on the ground in Afghanistan, the logistical infrastructure was sufficient to accomplish most of what was and continues to be required to accomplish the mission. Innovation and non-doctrinal solutions to the developing situation on the ground were common throughout the initial invasion and subsequent combat operations. The airdrop of horse saddles and oats for horses (for the 5th Special Forces Group) is a request most logisticians would not have anticipated. While there is always significant room for improvement, logistical support in Afghanistan is primarily a success story. What the U.S. Army witnessed however, was a shift away from traditional combat operations and formations. Following the surprisingly quick victories of the Northern Alliance

and SOF counterparts, the military found itself in a nation-building role. After 25 years of conflict there was little infrastructure or effective government organizations. The Contemporary Operating Environment model fit the scenario well. Ongoing operations proved as dangerous as the initial invasion and pockets of resistance and asymmetric threats were plentiful. As of this writing, combat operations and direct engagements with insurgent forces (Taliban, Al-Queda, Islamic Movement of Uzbekistan, Hezbi-Islami or HIG) are still a common occurrence and the U.S. Army still suffers casualties on a frequent basis. OEF was a good precursor to some of the challenges that the logistics community would face for Operation Iraqi Freedom and the invasion of Iraq. Issues such as asset visibility, in-transit visibility, range of tactical logistics radio systems, and overall STAMIS (Standard Army Management and Information Systems) communications architecture however could not be fixed in the short time between when the issues were discovered and the initial invasion of Iraq and Operation Iraqi Freedom (March 2003).

Operation Iraqi Freedom, Logistics Lessons Learned

Operation Iraqi Freedom was and continues to be the largest ground combat operation since Operation Desert Shield/Desert Storm in 1990-91. Since the conclusion of the Desert Shield/Desert Storm, the U.S. Army maintained a significant presence in the region (in Saudi Arabia until the late 1990s and primarily in Kuwait). During this time period, the U.S. enhanced infrastructure and continued to refine agreements for port facilities and the maintenance of the Army Pre-Positioned Stocks-5 (two Brigade Combat Team's worth of combat equipment and supplies). The Air Force enforced the southern and northern no-fly zones and were occasionally fired upon. Saddam Hussein and his regime often tested the will of the United Nations, which typically evoked a U.S. military response of force. The U.S. military would respond with an airstrike or a "show of force" with ground combat units. Operation Desert Fox [four days of air strikes (December 16-19, 1998) following Saddam's non-compliance with UN resolutions in

regard to weapons inspectors-which also led to a significant rapid buildup of U.S. Army ground units in Kuwait) in 1998 proved that the U.S. military could respond with speed and effectiveness to emerging threats in the area]³⁰ From 1998 until the invasion of Iraq in 2003, the U.S. Army maintained an armor or mechanized infantry battalion task force on the ground in Kuwait. The purpose of these deployments and associated exercises was multi-faceted. First, it showed the U.S. resolve to support both Saudi Arabia and Kuwait from Iraqi invasion, but also had the ancillary benefit of realistic desert training, it exercised the pre-positioned equipment, and tested the logistics infrastructure in the exercise of Reception, Staging, Onward Movement, and Integration (RSOI)³¹ of significant combat formations. After President Bush identified Iraq as part of the “Axis of Evil” in his 2002 State of the Union speech, military planners focused their efforts on Iraq and a possible military intervention. Units received prepare to deploy orders (PTDO) as early as April 2002.³²

The infrastructure to receive and provide sustainment to a large force was slowly put in place in 2002 and by December 2002, the remaining two brigades of the 3rd Infantry Division were arriving in Kuwait (one brigade was already in country). Deployment of the 101st Airborne Division (Air Assault), I Marine Expeditionary Force, and 4th Infantry Division quickly followed. The northern front was supposed to be opened by the 4th Infantry Division coming through Turkey, but diplomatic hurdles prevented this, forcing a shift to Kuwait. The 4th would miss the initial combat operations phase of the war because of this move. There was an extensive commitment of SOF forces that would infiltrate the country from the North with the Kurdish fighters, and in the west and south preventing the employment of Scud missiles and ground forces

³⁰ Accessed from http://www.defenselink.mil/specials/desert_fox/ on 3 JAN 06.

³¹ Fontenot, Gregory COL Ret, E. J. Degen LTC, and David Tohn LTC. 2004. *On Point, the United States Army in Operation Iraqi Freedom*. Fort Leavenworth, KS: Combat Studies Institute Press. 29.

³² Ibid, 45.

against Israel and other neighbors. The significant investment in logistics infrastructure facilitated this massive and time-compressed force buildup. In 2002 alone, the U.S. Central Command (CENTCOM) J-4 consolidated the requests for over \$550 million to improve/construct airfields, enhance troop staging/living areas, and improve port operations infrastructure. All of these requests for support were approved and funded, along with substantial assistance and generosity from the Kuwaiti government (they provided all of the fuel for OIF from 2002-2004 as well as pipeline and other support).³³

OIF would be the first major conflict in which the deployment of combat units did not rely upon the formal Time Phased Deployment and Data List or TPDDL. Units arrived in different force package configurations and late deployment orders led to a “rolling start” of combat operations. As the last units of the 101st Airborne Division and their support arrived, the lead elements were crossing the border into Iraq. This led to numerous problems with force reception and onward movement directly into the combat area. While units were able to overcome these hurdles, the process for future units should be more efficient. Arriving units relied on their own logisticians for the planning of the theater level Reception, Staging, Onward Movement and Integration. Because this is one of the Army G-4’s focus areas (Improve Force Reception), this task currently receives a greater amount of resources and visibility.

After quick success and rapid movement by all major ground elements, it became clear that the nature of this conflict was different from planned. The commander of the primary Army combat formation (V Corps, LTG William Wallace) said on March 27, 2003 that “The enemy we’re fighting is a bit different than the one we wargamed against.”³⁴ The large formations of Republican Guard never materialized in larger than a brigade formation, and coalition ground

³³ Ibid, 32.

³⁴ Starnes, Glenn T COL. 2004. Leveraging the Media: *The Embedded Media Program in Operation Iraqi Freedom*. Thesis. U.S. Army War College. 13.

forces found themselves fighting small but tenacious groups of primarily civilian clad fighters. Car bombs, suicide attacks, and use of non-combatants became part of the day-to-day combat operations. The enemy used mosques, schools and other “protected” buildings as bases of operation. They also used such facilities to store their weapons and ammunition. CSS units learned quickly that they often were a more lucrative and typically less protected target than their combat arms brethren. They had less force protection, fewer crew served weapons, and generally less force on force training. Initial logistical convoys had very few armed escorts or armored vehicles to protect them. Richard Killblane, the historian for the Transportation Corps at Fort Eustis, published several works on this exact topic. In his *Global War on Terrorism Occasional Paper #13, Circle the Wagons: The History of U.S. Army Convoy Security*, he describes in detail the actions of many transportation units in Vietnam and the hard lessons that they learned in a guerilla, asymmetric environment. His detailed accounts on the development of the Gun-truck and convoy security procedures in Vietnam accurately reflect the difficult and costly learning process CSS units went through in March 2003 to April 2004. It was on April 9, 2004 when the insurgents planned and executed an ambush of greater size and scope that had been seen to date. This ambush of the 724th Transportation Company (POL, Army Reserve) resulted in the death of two soldiers and six Kellog Brown and Root contractors. One third of the convoy vehicles were destroyed (POL tankers) and two soldiers and one contractor were captured (SPC Matt Maupin is still MIA). This ambush was one of the primary catalysts for the expedited fielding of armored vehicles (all types). Killblane’s thesis is that military professionals should evaluate successful historical examples of proper convoy security and that gun trucks and convoy-security doctrine must have a permanent place in the U.S. Army.³⁵ While the Iraqi insurgents improved their capability and creativity to manufacture and employ improvised explosive devices (IED) and

³⁵ Richard Killblane, 2005. *Circle the Wagons: The History of U.S. Army Convoy Security*. CSI, Fort Leavenworth, KS. 82.

vehicle-borne improvised explosive devices (VBIED), the need became even greater for CSS forces to introduce more effective convoy security practices. Because of this threat, all vehicles that leave the protection of a Forward Operating Base (FOB) in Iraq are now armored in some fashion. This however has not stopped the casualties completely as the enemy adapts to their new security environment and develops newer, more lethal tactics, techniques, and procedures (they are also adaptive).

During the initial combat operations phase of the conflict, CSS throughout the theater generally performed fairly well. Most classes of supply were effectively planned and executed. Fuel, water, food, and ammunition were typically available to all units as they pushed forward to Baghdad. These “commodity” items were forecasted and resupply convoys were often shipped out according to pre-existing timelines. The one area, in which many units lacked support, was that of Class IX maintenance spare parts. Because the Army developed a demand-based supply system primarily based on garrison demand rates, most units did not have the stockage level of spare parts that they needed for the “march up” on hand. The Prescribed Load Lists (PLL/unit level) and Authorized Stockage Lists (ASL/direct support level) were insufficient for the amount of use (both hours and miles) on the tracked and tactical wheeled vehicles. Because the rapid pace and distance the coalition forces covered, organic FM radio systems were insufficient to pass the supply requisitions to the supporting units in Kuwait and elsewhere in the theater (for example the theater Medical Logistics Warehouse was in Qatar). Units were not stationary long enough to establish the Mobile Subscriber Equipment (MSE) network from which the SARSS (Standard Army Retail Supply System-the primary automation system for ordering Class II, III(P), IV, VI, VII, VIII, and IX) typically transmitted data. Satellite Communications (SATCOM) frequencies were in high demand for operational communications and already were severely limited (one frequency allocated per division). The fielding of the VSAT (Very Small Aperture Terminal) which transmits data via satellite or in essence serves as a mobile web, allowed the logistician to pass the requisitions rearward, but a requisition received was not

necessarily a replacement part on hand and delivered. Units resorted to virtually every means available to communicate what parts they needed (satellite phone, courier on aircraft, with backhauled equipment and supplies, etc.). The VSAT does enable units to maintain connectivity away from the FM line of sight umbrella or in exceptionally austere operating locations. Purchased as a commercial off the shelf technology, over 900 terminals are in use (as of September 2005) and are serving as an excellent stop-gap until future Network solutions can provide the capability.³⁶

A critique of the OIF logistical architecture (for most of 2003) was the lack of a functioning and efficient Theater Distribution Center. In effort to keep away from the “iron mountains” of supply during Desert Storm, the U.S. Army had focused a great deal of effort on streamlining processes, “just in time” logistics, “best business practices,” and generally attempting to maximize efficiency over effectiveness. Throughout the nineties, these practices were established. The concepts generally revolved around eliminating excess and maximizing emerging management and distribution technologies to track and deliver the part as quickly as possible. Despite all of this modernization and supposed system improvements, OIF distribution was a significant problem for the first six months of the conflict. In *Army Logistician* magazine, Suzi Thurmond wrote about the creation of the Theater Distribution Center (TDC) as well as a host of other issues that led to distribution challenges:

The TDC, a non doctrinal ad hoc organization, became the linchpin of the 377th Theater Support Command’s operations. The decision to stand up the TDC was a response to the absence, at that point, of the planned GS supply activity that would have handled at least some of the TDC’s functions. The TDC was under-resourced and consequently manned by ad hoc work details drawn from surrounding GS units. The GS supply units arrived in the theater significantly after the date originally planned, and the facilities designated for them were used for other purposes. Once the TDC became operational, the central receiving supply point (CRSP) began transferring a substantial

³⁶ Christenson, Claude LTG. 2005. Enhancing Logistics Readiness. *Army Green Book*. AUSA. Washington DC. 174.

portion of its backlog to the TDC. Over the next few weeks, the TDC worked off the backlog, even without a GS unit in place to run the TDC.³⁷

The Army's OIF Study Group from the Center for Army Lessons Learned (CALL) identified logistics as one of the four areas that fell short of expectations. They found that "Logistics distribution and management systems, weakened by late deployment of support units, failed to adequately support the requirements of OIF forces."³⁸ The Study Group also recommended that any logistics transformation concepts should be based on the COE-addressing extended, non-contiguous offensive operations (traditionally the most difficult to plan and sustain). The Joint Staff J-4 sponsored another critical study of the OIF distribution system. From their perspective they thought doctrine was adequate, but execution was generally lacking:

The area of operations associated with Operation Iraqi Freedom is an austere, undeveloped theater. Joint doctrine fully anticipates the challenge associated with this environment and the implications of this environment when undertaking combat operations. Doctrine is specific in requiring preplanning of the theater infrastructure to match the mission requirement. Significant problems were encountered during OIF, particularly in sustainment; many of these problems were directly related to unanticipated capacity constraints and bottlenecks in the theater distribution system. Seaports never met planned throughput rates, airports were spaced-constrained, and the TDC was an afterthought. Expeditionary logistics requires the rapid deployment and execution of a preplanned distribution capability. In hindsight, it is evident that theater infrastructure was incompletely planned and developed prior to the initiation of the combat phase of operations.³⁹

When forward operating bases (FOBs) and Logistics Support Areas (LSA) became operational, the distribution of basic commodity items was easier. Once combat arms maneuver units were stationary, the supply system began to catch up with the overwhelming demand for equipment. Repair parts and end item replacements (CL VII) still did not arrive in a timely

³⁷ Thurmond, Suzi. 2004. Analyzing the lessons of OIF Distribution. *Army Logistician*, 3.

³⁸ U.S. Army Operation Iraqi Freedom Study Group. U.S. Army Operation Iraqi Freedom, Observations Quick Look. Briefing slide 17 of 88. Center for Army Lessons Learned. Accessed on 11 Jan 2006 from: <https://call2.army.mil/focus.oifsg.asp>

³⁹ Various. 2004.DUSD (LMR) and Joint Staff J-4 Objective Assessment of Logistics in Iraq. SAIC. Washington ,DC.

manner, and many units established systems of “expeditors” at major logistical nodes. This un-resourced requirement had units place several top-notch soldiers and NCOs at the log hubs (Baghdad International Airport, Balad, Doha, Al-Udeid, etc. depending on the type of unit) to identify critical equipment for their supported units and ensure that the equipment made it to the proper destination without being pilfered or claimed by some other unit.

The ongoing logistical challenges of OIF have kept the theater logisticians busy for the last three plus years. The rotation of units alone is a tremendous accomplishment when not under fire and facing the threat of enemy IEDs and contact. The operational environment of OIF has morphed and adapted to changes that U.S. and coalition forces have undertaken. Force protection of logistics convoys and assets is still a primary concern. New systems such as Battle Command Sustainment Support System (BCS3), improved RFID theater architecture, and enhanced versions of the Movement Tracking System allow logistics leaders to better track and manage the supplies within the chain. The Army has the opportunity to validate many of its transformational concepts and ideas in a combat environment. This unique opportunity provides a mechanism for immediate feedback not available during peacetime.⁴⁰ It is highly likely that future operations of the U.S. Army may be similar in scope, challenges, and tempo to both OIF and OEF. Army decision makers must expeditiously field and evaluate these transformational systems, concepts, and theories. The opportunity to support the nation’s next campaign may come sooner rather than later.

History and many other factors and conflicts have an affect on transformation and future CSS developments. An understanding of current events and present-day conflicts helps the Army prepare and predict required or desired transformational capabilities. An assessment and analysis of transformational doctrine, organizations, training, and material will inform and convince the

⁴⁰ Maccagnan, Victor, LTC. 2005. *Logistics Transformation-Restarting a Stalled Process*. Thesis. United States Army War College, Carlisle Barracks, PA, 8.

reader that CSS transformation is headed in the right direction. The following chapter defines transformation and discusses in detail the DOTM of the DOTMPLF framework.

CHAPTER 3

What Defines Logistics Transformation?

The concept of transformation is not new to the United States Army. The Army is in a constant state of change. Advances in technology, especially automation, fuel a new Revolution in Military Affairs (RMA). Best described by Murray and Knox in the book the *Dynamics of Military Revolution*:

Military organizations embark upon a RMA by devising new ways of destroying their opponents. To do so, they must come to grips with fundamental changes in the social, political, and military landscapes; in some cases they must anticipate those changes. Revolutions in military affairs require the assembly of a complex mix of tactical, organizational, doctrinal, and technological innovations in order to implement a new conceptual approach to warfare or to a specialized sub-branch of warfare.⁴¹

The current RMA is based upon a number of things. Some components to this RMA include (but not inclusive): Net-Centric Warfare, the operational environment, weapons technology, and the requirement for joint and enhanced expeditionary operations. The CSS objectives for the Future Force and a transformed logistics capability are not entirely new concepts. GEN Carter B. Magruder, former Army G-4 and Eighth Army Commander wrote the following in 1970 based on his experience in World War II, Korea, and Vietnam:

Since smaller logistic troop requirements allow more combat troops in the field, continuous efforts must be made to reduce logistic troop requirements for a theater of operations. Important among the many methods that should be considered are: simplification of distribution by broader use of containers with standard content; improved reliability and durability of equipment; reduction of fuel consumption; use of local labor; use of transportation to support short evacuation policies, to return unserviceable equipment to the U.S. for repair and to reduce ground lines of communications; reduction of the maintenance load by

⁴¹ Knox, McGregor and Murray Williamson. 2001. *The Dynamics of Military Revolution 1300-2050*. Cambridge University Press. Cambridge, UK. 12

making more components “throw-away” instead of “repairable”; and organization and training of allied logistic troops.⁴² Perhaps current and new technologies will enable the present concepts for transformation. Obviously, the ideas for improvement are well recorded. Some of the very issues that GEN Magruder identified are specific examples of what the Future Force should accomplish.

The current transformation effort evolved over the last seven years beginning with the previous Chief of Staff of the Army, GEN Eric Shinseki. His focus on the expeditious fielding of the Interim Force (as opposed to the continued development and experimentation of the Force XXI heavy division) led to the development and eventual deployment of the Stryker Brigade Combat Teams or SBCT. Four of six SBCTs are fielded or in the process of fielding, and two SBCTs completed 12 month tours in Iraq with the 3rd SBCT (172nd SBCT out of Alaska) currently in Iraq. The Global War on Terrorism (GWOT) and the current Chief of Staff, GEN Pete Schoomaker accelerated the process of transformation and modularity. With the GWOT viewed as a funding window of opportunity, his vision led to the creation and implementation of the Army Campaign Plan, and the 2003 Army Transformation Roadmap (updated in 2004). These and numerous other documents (Joint Vision 2020, products from the DoD’s Office of Force Transformation, and DoD Transformation Planning Guidance) lay out the concepts and principles that define how the Army is postured for future conflict.

While modularity is only a sub-set of transformation, it is a critical element with wide-reaching implications. The affect of modularity on logisticians is significant as it reorganizes logistics units at the tactical, operational, and strategic level. Because of the large commitment of forces in OIF, and the desire to organize more combat capable forces for rotational purposes, current funding levels, and transformation initiatives are in the process of implementation now.

⁴² Magruder. Carter GEN. 1991. *Recurring Logistic Problems As I Have Observed Them*. Center of Military History, United States Army. Washington, DC. 122.

With resources and a will to change, there will be results. Transformational change efforts will not be in vain if the analysis of the operating environment proves to be correct.

The transformation of logistics units, systems, and doctrine plays a vital role in the sustainment and support of Army, joint, and multi-national ground based forces. Doctrine in this Logistics Transformation is essential because the Army is reevaluating how it provides support to the warfighter. From the Draft Modularity Organization and Operational Plan:

Joint and Army logisticians have revised their concepts for support in light of these developments (technical developments in communications, automated inventory management and all modes of transportation compress and accelerate support operations). They propose to replace material-based logistics operations with distribution-based, highly automated and better-integrated system that will facilitate expeditionary operations. Better asset visibility and enhanced sharing of information and material between components, civilian agencies and allies all play a role in this. The end result will be a vertically integrated Joint support system that enables Army logisticians to deliver better service to the theater and to the transformed land component.⁴³

Because a successful transformation will influence the entire DOTMPLF spectrum, the next section will evaluate logistics transformation initiatives in the DOTM categories.

The Doctrine of CSS Transformation

Army CSS doctrine is the responsibility of the Combined Arms Support Command at Fort Lee, VA. They are subordinate to the Army Training and Doctrine Command at Fort Monroe, VA. Within CASCOD, the Army, Joint, and Multinational Concepts and Doctrine

⁴³ Department of the Army. 2004. *Draft Modularity O&O Plan*. Fort Leavenworth, KS

Division reports to the Deputy Commander for Futures.⁴⁴ They are the official proponent for all doctrine and future sustainment concepts. The mission of the division is to “develop, manage, and integrate Army, joint and multinational logistics concepts to realize Army transformation through capabilities for both current and future forces.”⁴⁵ Their job is complex based on the number and diversity of the organizations with whom they must interface. Besides the CSS disciplines of Quartermaster, Ordnance, Transportation, and Medical Services, they must coordinate and plan with strategic and joint partners such as the Defense Logistics Agency, U.S. Transportation Command, Combatant Command staffs, and the Headquarters Staff, Department of the Army. Across the Army, there is a focus and effort to rapidly accelerate the time it takes to publish doctrine. Historically, the Army developed its doctrine, and then designed the units to meet the doctrinal expectations and requirements. From a business perspective, one would not design the company organization and then publish the mission or goals. In many cases, units formed or are forming without the guidance of supporting doctrine as to what they must accomplish or understanding of organizational hierarchies. This is not only a logistics problem; across the various branches and components, doctrine writers and futurists are working to publish doctrinal guidelines for many types of units. Army-wide, this led to the publication of numerous Field Manuals-Interim. Instead of a five to seven year process, Army leadership pushed the doctrine developers to publish something in two years or less. The concept of the 80% solution now is better than 100% solution too late. “Good enough” is now a commonly used term even in the description of doctrine development and publication.⁴⁶ For relevancy purposes to the operational force this is absolutely critical.

⁴⁴ Department of the Army. 2005. *Combined Arms Support Command Organizations and Functions*. TR_10-5-5. Fort Lee, VA. 25, 36-38.

⁴⁵ Ibid. 37.

⁴⁶ Department of the Army. 2005. FM-I 4-90.1, *Heavy Brigade Combat Team Logistics*. Washington, DC. x.

CASCOM feverishly published FM-I 4-90.1, *The Heavy Brigade Combat Team Logistics*, in July 2005. Based upon the experience of the modular heavy brigades (and the logistics support of their new Brigade Support Battalions) of the 3rd Infantry Division during Combat Training Center rotations in FY 2004, the manual will “expire” in two years, being replaced by the actual FM, not another FM-I.⁴⁷ Feedback from the National Training Center Observer Controllers (O/C) in October 2005 was highly critical of the new manual. During a discussion with LTC Stephen Smith, the senior Main Support Battalion/Corps Support Battalion Logistics O/C, the consensus among logistics O/Cs was that the manual did provide some framework for doctrine and tactics, techniques and procedures, but that there were numerous discrepancies and contradictions throughout.⁴⁸ Nevertheless, this manual does provide guidance and direction for those units who are the process of modularization and transformation. At this time, approximately one-half of the mechanized/heavy forces have completed modularization while the others are in the process. A Field Manual for the Infantry (Light) Brigade Combat Team Logistics will be published soon, but a draft of the manual was not available open-source. A second Field Manual from CASCOM is in the works for the Sustainment Brigade (FM 4-93.2).⁴⁹

The Sustainment Brigade is a new headquarters that will replace both the Division Support Command and Corps Support Groups to serve as either an operational or tactical level logistics headquarters. Sustainment Brigade concepts and organization and are covered in the next section of the paper, but the draft manual does have some excellent doctrinal information on force protection and force protection planning. While hardly mentioned as an aspect of CSS

⁴⁷ Ibid, x-xi.

⁴⁸ Smith, Stephen LTC. 2005. Phone Conversation, OCT 2005. National Training Center Sr. Logistics Observer Controller, Fort Irwin, CA.

⁴⁹ Department of the Army. NO DATE. *The Sustainment Brigade*, FM 4-93.2 (Coordinating Draft). Washington DC.

operations in Field Manual 4-0, a Chapter and Appendix are relegated to force protection operations in FMI 4-93.2.⁵⁰ Threats by type and phase of the operation are detailed and the role of the Sustainment Brigade is generically described for each. These worthy inclusions reflect the combat experiences of the last four years and help the organizational leader better prepare units for the challenges of the COE.

Another emerging concept with doctrinal affects is the Sense and Respond Logistics initiative. Attempts are underway to incorporate this model and concepts into the future doctrine of the Future Combat System Sustainment organizations. This latest “buzz-word” in logistics modernization and sustainment theory is defined as “an integrator of operations, intelligence, and logistics to manage events in near real time across the continuum from the tactical point of effect to the commercial provider, to maximize the sustainment and effectiveness of the force.”⁵¹ Other characteristics of Sense and Respond Logistics (S&RL, as laid out by the Department of Defense Office of Force Transformation) are that this approach will yield adaptive, responsive demand and support networks that operate in alternate structures that recognize the appropriate operational context and coordination. The proposed primary metric for S&RL is speed and quality of effects.⁵² In theory, this concept is the logistical counterpart to the effects based approach to planning and execution. Perhaps the definition offered by James Blaker of Science Applications International Corporation (SAIC) really simplifies the concept in plain language; “a capability that would enable faster combat operations by sensing materiel needs and responding to those needs before they hinder or slow operations.”⁵³ The concept for Sense and Respond was

⁵⁰ Ibid, Chapter 5, Appendix B

⁵¹ Chin, Bobby. 2005. Information Paper, Sense and Respond Logisitcs. U.S. Army Logistics Transformation Agency. Fort Belvoir, VA.

⁵² Department of Defense. 2004. *Operational Sense and Respond Logistics: Coevolution of an Adaptive Enterprise Capability*. Office of Force Transformation, Washington DC. 4.

⁵³ Roosevelt, Ann. 2003. Logistics in Iraq Show Signs of Transformation, Experts Agree. *Defense Daily*. 1-2.

derived from an IBM business model to maximize efficiencies in flexible supply chaining, modular dynamic internal reorganizations, use of self-synchronizing networks, and the use of sophisticated information technologies to enable data sharing.⁵⁴ It appears that these S&RL concepts have significant support from members of the joint community. MacCagnan argues in his research paper that the Army nest these concepts within current transformational approaches and that “buy-in” from the force is achieved before fully embracing these concepts and principals.⁵⁵ Besides some informational links in the somewhat obscure Logistics Transformation Agency website (www.lta.army.mil), there are no explanations of how the Army plans to implement the Sense and Respond Logistics Concepts. The concept assumes that under the appropriate conditions (Logistics Common Operational Picture fully functioning, Total Asset Visibility, distribution capability), logistical units may anticipate where and when their combat arms counterparts require resupply, and have the supplies and equipment on hand at the right time with the right assets to deliver them. It is still to be determined what this concept means at the operational and tactical level, and what specific systems or concepts will enable S&RL to achieve functionality.

Significant progress in transformational doctrine takes a great deal of time and effort. CASCOM and numerous agencies must synchronize and nest concepts and ideas. The rapid pace of modularity outpaced the capability to write and publish pertinent doctrine. Sense and Respond principles have conceptual merit, but may prove difficult in execution. Leaders in the Sustainment Commands, Infantry Brigade Combat Team BSBs, and CSSBs will continue to exercise their own initiative and understanding of commander’s intent to establish, man, and deploy their units to combat. The United States Army will continue to use doctrine as a guide,

⁵⁴ . Department of Defense. 2004. *Operational Sense and Respond Logistics: Coevolution of an Adaptive Enterprise Capability*. Office of Force Transformation, Washington DC. 5-6.

⁵⁵ Maccagnan, 17.

not as a regulation. Because senior leaders publish other guidance in the form of campaign plans, transformation roadmaps, and focus areas, Army units will do the best they can with what they are given. Modularity/Transformation doctrine will guide the next generation of leaders as they further refine what they inherited.

An Analysis of CSS Organizational Transformation

Perhaps the most dramatic change to the operational Army is the changes made to the various organizational structures. From a business and historical perspective, organizational change is typically a frustrating and complicated process. Typically, businesses hire an external team or consultants to assist in their organizational change efforts. While the Army consults with retired senior leaders, contracting consultants with military experience, and maybe even some commercial consulting firms, the changes are primarily top-down driven. It is the Captains, Lieutenants, and Sergeants that will truly be responsible for the implementation. Education and communication of these organizational change concepts are critical if the Army desires the mid-level leaders be the change agents in transformational units. The complexity and confusion of the change are magnified with the understanding that the transformed unit will deploy to a dangerous combat zone within a matter of months. Thousands of equipment lateral transfers, new equipment, required training, and changes in the personnel systems are only some of the issues facing organizational leaders today. Although modularization began at the Brigade Combat Team level, that is only the beginning of the reorganization for Combat Service Support units. From the Forward Support Companies now in the Brigade Support Battalions to the Sustainment Brigade (Theater Opening) in the Sustainment Command (Theater and Expeditionary), organizations within the Army structure are in a process of upheaval and rapid reorganization. Organizational change will continue at the Brigade and Division level in the Active Component through Fiscal Year (FY) 2007 while modular conversion in the National Guard will take until FY 10. It's likely that CSS units will still be in the process of modularization and transformation

for the next 5-8 years. During FY 06, the Secretary of Defense along with the Army Staff will make the decision whether or not to add the five additional Brigade Combat Teams (to bring the number of BCTs to 48).⁵⁶ Published timelines for complete logistical reorganization are not currently public. All Division Support Commands will transition to the Sustainment Brigade concept and organization. While these Sustainment Brigades are typically co-located with BCTs from the same division, they will not always support or deploy with those BCTs, or have the same home station support relationships. The Sustainment Command is a new organization with new operational concepts. Designed to replace the Corps Support Commands and Theater Support Commands, the new Sustainment Commands (SC, Theater or Expeditionary) are fixed headquarters organizations with modular subordinate units capable of providing multifunctional logistics, supply, maintenance, transportation, health service support, POL, and port and terminal operations.⁵⁷ The goal of this organization is to provide the Joint Force Commander a single point of contact to synchronize strategic, operational, and tactical levels of support. The SC will also have “an integrated logistics communications architecture that will enable a strategic reach-back capability from the theater to the strategic base in the Continental United States, giving logisticians visibility of en route personnel and material.”⁵⁸

While the changes in the Brigade Support Battalions are dramatic in the reorganization of personnel and equipment, what is the dramatic difference in these organizations at the Sustainment Brigade level? Didn't CSS units typically task organize for a specific mission? Were they already modular? The Corps Support Group and Corps Support Battalions had units assigned for garrison responsibility, training, and oversight, but could and often did deploy

⁵⁶ Department of the Army. 2004. *2004 Army Transformation Roadmap*. Washington, DC. 3-3.

⁵⁷ Combined Arms Support Command. 2005. *Sustaining a Campaign Quality Army with Joint and Expeditionary Capabilities, White Paper on Logistics Support to the Modular Force*. Ft. Lee, VA. 8-9.

⁵⁸ Department of the Army. 2005. *We've got you Covered, Army Logistics, Delivering Material Readiness to the Army*, Washington DC. 10.

without their “organic” garrison companies if the mission dictated. The new Sustainment Brigade concept is based again on a fixed headquarters with a tailorable “menu” of units from which to choose. Assigned to a Sustainment Command (E or T) in a theater of operations, the subordinate Sustainment Brigades will have specific mission sets as the METT-TC situation dictates.

Currently envisioned are the Sustainment Brigade concepts of theater opening, theater distribution, life support, and traditional CSS support to a Division, Corps, or Army.⁵⁹ In the Sustainment Brigades tasked to provide support to a Division, operations will be very similar to the legacy support of a Division Support Command or Corps Support Group (Forward). Under modularity, there will not be the same habitual support relationships enjoyed previously. For example, the 82nd Sustainment Brigade will deploy to OIF in July-August 2006. They will support the 25th Infantry Division Headquarters with one BCT from the 25th, one BCT from the 82nd one from the 1st Cavalry Division, and a Stryker Brigade Combat Team. The theoretical advantage of such a system is that units are standardized and therefore support will be more predictable and anticipatory. BCTs will only come in three variants, Infantry, Stryker, or heavy. Some will have additional capability like airborne or air assault, but that should not dramatically affect unit MTOE, but will affect how forced entry capabilities are planned and executed (requirements for parachute riggers, airdrop items, or sling-load expertise, etc.)

The Army Sustainment Command (ASC) is another new logistical organization under modularization and transformation. Focused and designed to serve as a strategic level headquarters, this organization will fill many key roles. Its mission is to plan, prepare, rapidly deploy subordinate units, and execute logistics from the sustainment base. The ASC is a strategic level headquarters that coordinates the JOPES process and serves as the integrator between

⁵⁹ Combined Arms Support Command. 2005. *Sustaining a Campaign Quality Army with Joint and Expeditionary Capabilities, White Paper on Logistics Support to the Modular Force*. Ft. Lee, VA. 12-14.

operational units and the subordinate elements of U.S. Transportation Command (USTRANSCOM), the Defense Logistics Agency (DLA), and numerous Logistics Assistance Officers from Army Material Command.⁶⁰ The Army G-4 envisions that the ASC will also assist Army Forces Command and Joint Forces Command with oversight of regeneration and redeployment of forces, as well as coordinating the end-to-end distribution pipeline.⁶¹ The ASC is still a conceptual organization at this time, but CASCOM is further refining unit organization and resourcing.

The force development process is the process in which a good idea eventually becomes an Army unit with an authorization for soldiers, equipment and resources. While the study of the force development process is probably another monograph all together, an ancillary understanding is key to understand how units are organized. The acronym prolific process is described in the 24 page Chapter Five of *How the Army Runs; a Guide for Senior Leaders*.⁶² The design and implementation of organizational designs are authorization documents known as Tables of Organization and Equipment (TOE) or Modified Tables of Organization and Equipment (MTOE) in operational units, and Tables of Distribution and Allowances in Garrison/Institutional Units. Army units are managed by the U.S. Army Force Management Agency headquartered at Fort Belvoir, VA. This Agency radically transformed numerous internal processes to deal with the dramatic increase in workload due to the rapid pace of modularization and transformation. Until 2003, the design and implementation of new, from scratch unit organizations took approximately three to five years.⁶³ Beginning with 3rd Infantry Division and all the others that have since begun modularization, MTOEs have been in a constant state of creation, revision, and

⁶⁰ Ibid, 10-11.

⁶¹ Christianson, 176.

⁶² Department of the Army. 2005. *How the Army Runs, A Senior Leader Reference Handbook*. Carlisle Barracks, PA. 41-64.

⁶³ Ibid, 61.

re-revision. The focus initially was on the BCTs and their subordinate units. CASCOM, other operational COSCOMs (1st, 3rd, 13th), Corps Support Groups, and others are determining how they will organize to fit into the new organizational structure and what personnel and equipment they will have or want to have. The system is not perfect however because there is no doctrine for some of these units and the Soldiers in the transforming units, as well as Combat Developers at CASCOM and other senior logistics leaders, are providing their best input to envision what will be required for these units in the next five to ten years. In many cases, organizations are created from the Organization and Operational White Papers that provide basic concepts and flesh out potential roles and responsibilities for these units.

Organizational change is not an easy process, as outlined in the introduction of this section. The cultural biases, experience, and willingness to change in Army units will determine how successful the change effort is. Most Army units are familiar with change. Commanders and Soldiers move in and out of different units, duty positions, and duty stations. They bring a varied amount of technical competence, training backgrounds, and operational experience that defines who they are and what their units accomplish. While difficult to execute in the short term, the organizational designs within logistics organizations will result in effective support to the warfighter. Time will determine if the transformational concepts are valid.

The next section of the DOTM analyzed is training. Training is a critical component to the evolving COE doctrine. As previously stated, the non-contiguous and asymmetric battlefield can be a high threat environment endangering less protected units and ground convoys.

Training for CSS Transformation

Training is a domain that requires a great deal of attention from a CSS perspective. Following the successes of Desert Shield/Storm, CSS units spent a majority of their training time on their CSS missions. This focus was not necessarily a bad thing. Because of this CSS focused training plan, most CSS units delivered more timely and efficient support to their customer units.

Automation tools and processes were established and refined. However, critical combat skills training (skill level one shoot, move, and communicate tasks) did generally not receive the same priority or level of resources. While divisional and select few others participated in Combat Training Center rotations, most echelon above division units did not receive the same level of organized force on force training. Advantages of such training include O/C feedback and evaluations, external opposing forces, civilian role players, urban environments, etc. In the monograph introduction, STRAC allocations of ammunition and policies regarding weapons qualifications are discussed. The simple change implemented in FY 2004 doubled or tripled the allocation of training ammunition for most CSS units. In addition, resourced and mandated training for CS/CSS units include the requirement for an annual collective live-fire exercise.⁶⁴

OIF opened the eyes of many CSS soldiers and leaders as to the dangers of the non-contiguous, asymmetric, battlefield of the COE. In 2003, the Commander of the 19th Theater Support Command stated, “There is no room for a “rear-area” mindset, unless that mindset is one that acknowledges that in war being in the rear area or in the vital logistics lines of communication may well be the most dangerous place to be.”⁶⁵ There are varieties of training strategies to deal with this new paradigm and ideally future CSS units and their soldiers will have the experience, resources, and equipment to better deal with the threats of the COE.

In *Army Logistician* magazine, MAJ David Mann argues that the necessary change in the CSS soldier’s mindset is primarily based upon leadership. With a commitment to prioritize tactical training and by providing the resources to execute this type of training (primarily time), almost every unit can realize his motto, “Every Soldier a Rifleman.”⁶⁶ The Soldier’s Creed and

⁶⁴ Department of the Army Pamphlet 350-38, Standards in Weapons Training, Paragraph 9-2. FY 2006

⁶⁵ Edmunds, Jeanette, MG. 2004. Quoted in Power Point Briefing to the Fort Lee Pre-Command Course. Slide 4.

⁶⁶ Mann, David MAJ. 2004. Every Soldier a Rifleman. *Army Logistician*. Fort Lee, VA. 3.

Warrior Ethos echo MAJ Mann's sentiments. The renewed emphasis on "Warrior Tasks" in Initial Entry Training provides focus to small unit leaders and soldiers that they must survive to support. In 2005, both the Ordnance and Quartermaster Center and School instituted a policy of weapons immersion training for their soldiers in the Advanced Individual Training (AIT) Programs of Instruction.⁶⁷ Previously, AIT students did not even touch a weapon during their entire eight to sixteen-week training program. Now issued a weapon with blank ammunition on day three of AIT, they must load and unload their weapons when appropriate and take them wherever they go. Soldiers in CSS AIT programs also qualify with their basic weapons, and complete a convoy live fire exercise. While perhaps not as advanced as what they will encounter with their operational unit, it introduces them to the concept of collective live fire training, fire and maneuver, and builds their confidence in their own abilities. The goal of this program is greater familiarity and comfort with their assigned weapons once in Iraq, Afghanistan or elsewhere. The weapon becomes an appendage, the number of accidental/negligent discharges drops significantly, and theoretically, the qualification rates and scores should rise over time. While only a small step in the overall training domain, it sets the proper foundation for young soldiers as they rise through the ranks and helps instill the warrior spirit that GEN Schoomaker and every other Army leader desires.

From a CSS Transformation perspective, the Combat Training Centers (CTC) provide the most up to date training strategies for units preparing for deployment. Tactics, techniques, and procedures are in a constant state of revision based on feedback from deployed units, and from Observer/Controller personnel that deploy to the operational theater to see current events in person. With the initial transformational focus on the Brigade Combat Teams, CTCs serve a critical role in the preparation of units for combat deployments. The Training Centers

⁶⁷ Poole, Richard COL. 2005. Address to QM Officers, 17 AUG 05 Fort Leavenworth KS.

transformed in their mission and scenarios to provide realistic conditions for maneuver units. The National Training Center rotational scenarios are based upon Iraq, and the desires of the rotational units. The NTC employs over 300 Arabic speaking, Iraqi-Americans, and provides units with eight villages/towns, five cave complexes, a religious site, and five semi-permanent FOBs. Also included in the rotational training plan are use of bilateral negotiations, use of UAVs, IED threats, kidnapping, convoy patrols, and use of Commander's Emergency Response Funds.⁶⁸ While the CMTC and JRTC have implemented similar training aids, not all is perfect. The primary weakness of this system is that fact that the training focuses on a Brigade Combat Team and their internal logistics. Only a slice of their DS support can participate in the training exercise based on physical resources, and amount of available training time. While the NTC has improved their combat patrol lane for convoy live fire exercises, they still do not execute a night live fire, nor does 100% of the BSB have the opportunity to complete the training lane. Not enough time is available for the entire BSB to conduct the convoy live fire lane.

While FSBs/BSBs receive this training at the CTCs, other Echelon above Brigade and Division CSS units must develop their own training in preparation for deployment. These leaders make the best of what they are given or can get from their home station, but often they cannot gather the amount of resources or training support to make their Mission Rehearsal Exercises as elaborate as they would like. Systems at the institution/Army level are not designed to provide them with the combat skills training that they will require in theater. Multi-Composition Army Reserve Training Support Brigades assist in this type of training, but standards are greatly divergent. While the stop-gap measure to deal with this issue is the creation and execution of the Convoy Live Fire Exercise at the Udairi Range Complex in Kuwait (and without a doubt, it provides some of the most realistic 360 degree, shoot on the move-out of both sides of the

⁶⁸ Smith, 1. CERP funds are allocated to the commander to disperse as he/she desires. While the amount of money is not exorbitant, these funds allow the unit to invest/spend where they see fit.

vehicles training for units soon to head north), this may be too little, too late.⁶⁹ Further hindering collective training, Corps Support Groups and in the future, Sustainment Brigades do not typically train or meet with all of their subordinate elements until they arrive in Kuwait for RSOI. While this should not be a problem at the company level and below, staff integration and familiarity at the battalion and above may be disjointed and dysfunctional at first. Typically, units can overcome these difficulties over time, but arriving in Kuwait and preparing for movement in a combat area is not the ideal time to figure out the capabilities of subordinate elements.

The current GWOT threats of Iraq and Afghanistan dominate the Army's current training initiatives. Nothing is wrong with this methodology, as long as ideas do not stagnate on the training for the future force and the future threats as well. CSS leaders at the operational and strategic level must focus their training models on the COE and other emerging doctrinal/national threats. The other ever-present challenge for CSS trainers is that of achieving a balance between the technical CSS skills training, and the soldier skills based tactical training. Based on the lessons learned in both OIF and OEF, the Army and unit leaders should never shortchange tactically focused training in either time or resources.

Continuing in the DOTM analysis of CSS Transformation, the next section addresses the changes in CSS material transformation. This section is perhaps the most contentious because of its direct link to large amounts of funding and suggested reallocation of resources.

Material Transformation Analysis

Modern warfare is a complex system of systems that requires a multitude of complex equipment and technical expertise. The CSS community is not immune to the amount of new

⁶⁹ C-3 Training, Combined Land Forces Component Commander (3rd Army), Military Professional Resources Inc. 2004. *CFLCC convoy leaders handbook*. Camp Doha, Kuwait: U.S. Army.

equipment and “gadgetry” currently fielded or in development. One would expect that there is a net gain in effectiveness, efficiency, safety, force protection, or situational awareness with a new piece of equipment or material. No other domain of the DOTMLPF received as much attention as material has (especially in reference to CSS forces). From the lack of radios and functioning weapons in the 507th Maintenance Company, to the slow development and fielding of approved personnel body armor and add-on up-armor kits, material solutions are viewed as the necessary and easy “quick fix” by the public. Material solutions are also essential to the Army G-4’s focus areas of connecting logisticians, modernizing theater distribution, and integrating the supply chain.⁷⁰ While many of the material solutions for the Army G-4 revolve around information sharing, asset visibility, and network solutions (Movement Tracking Systems, BCS3, RFID systems architecture, etc.), not enough attention is focused on the material required for the CSS soldier on the ground.

While the Rapid Fielding Initiative provides all soldiers with the modernized clothing, environmental items, and body armor, CSS soldiers do not receive the latest in small arms, crew served weapons, and night vision equipment. In the pre-transformational system, units were fielded equipment based on their Authorized Level of Organization off of a Master Priority List. Outside of Special Operations Forces, 18th Airborne Corps Units, and the 82nd Airborne in particular typically received a great deal of new equipment before other conventional divisions. This paradigm may change in the future based on the life cycle manning and Army Force Generation models, but at this time equipment fielding in these processes is unclear.⁷¹ However,

⁷⁰ Department of the Army. *We’ve got you Covered, Army Logistics, Delivering Material Readiness to the Army*, April 2005, Washington DC

⁷¹ Life Cycle Manning is a new method of assigning a high percentage of Soldiers to a Brigade Combat Team at one time so they can train, be ready for deployment, and deploy. The Life Cycle is a three year time period. Army Force Generation is the new process through which the Army will manage its units in preparation for deployments. Certain BCTs will be ready for utilization while others are still in reset or training.

even today in a BSB of the 82nd Airborne Division, only AN/PVS-7Bs are authorized as the primary night observation device (NOD), and no infrared aiming lasers such as the AN/PEQ-2A are authorized.⁷² These NODs are fifteen-year-old technology and issued to combat arms units in the early/mid 1990s. Based on the COE and what the U.S. Army experienced to date in Iraq, night vision for CSS should be a priority. Convoys and other CSS operations take place under darkness, so why should support units continue to operate with second and third-rate equipment? Material and especially battle focused combat material solutions for CSS will be expensive. NODs, IR lasers, individual weapons, individual and vehicle mounted radios, and crew served weapons, must be reallocated to CSS units who need this equipment. This material shortfall is a result of the conventional battlespace design. Because CSS soldiers are dying in numbers almost commensurate with combat arms, there are justifications for improvements. CSS modular units are struggling with material issues as they either don't yet have the required new equipment, or perhaps they have it, but their personnel are not proficient in its operation and they cannot interface with the elements they are supposed to. The struggle to integrate new equipment is constant, as is the coordination required to field the equipment in conjunction with New Equipment Training (NET) that is typically required. Efforts to fix these material shortfalls are in the works for logistics units in the Brigade Combat Teams. In Fort Knox Supplemental Manual 71-8 (published in October 2005, using current and approved TOEs), every vehicle in the Brigade Support Battalion and associated Forward Support Companies has at least one vehicle mounted radio and a FBCB2 terminal.⁷³ This is a step in the right direction to enable situational awareness as discussed in the vignette at the start of this paper. Only time and resources will tell if

⁷² Accessed from <https://webtaads.belvoir.army.mil> on 27 JAN 06. UIC WH3EAA, 407th BSB, 82nd Airborne Division, Effective Date of 16 JUN 06. An AN/PEQ-2A is a weapon mounted infrared laser aiming device that allows the Soldier to accurately identify and engage targets at night with the assistance of their NODs.

⁷³ Department of the Army. 2005. Fort Knox Supplemental Manual 71-8 *Armor/Cavalry Reference Data, Brigade Combat Teams*. Fort Knox , KY. Various.

transformation funding will be able to authorize all of these systems across all the BCTs in the Army (in MTOEs). While the amount of FBCB2 systems in the BCTs is a step forward, what will units above the BCT level see in their vehicles? The Movement Tracking System is currently in use with positive results in Iraq. This system does not have the full capability of FBCB2 and other Blue Force Tracker systems, is not secure (encrypted over NIPR), and relies on leased commercial satellite downlink capability in Qatar and India.⁷⁴ The MTS system however does allow the higher headquarters or adjacent units to track vehicle progress in a Common Operational Picture type display and the capability to send and receive text messages to and from the vehicles.

Soldier innovation and adaptability can bridge some of the gaps in material solutions. In a self-preservation mode, many developed and applied armor to their vehicles until the industrial base and the American public distaste of military bureaucracy led to the aggressive fielding of up armored Humvees and other add-on armor kits in OIF. An example of such adaptability is found in “Safe Passage,” an article in *Army Logistician* detailing the exploits of the 497th Transportation Company who were tasked with Convoy Escort Security in OIF. Their MTOE was for a Light/Medium truck company without the required number of radios, weapons, and force protection equipment for such a dramatic shift in METL tasks. Their CONUS based training in support of a SBCT at JRTC was not in keeping with the mission they would actually conduct in theater, and they did not receive any additional fielding of weapons or communication devices until they reached Kuwait.⁷⁵ The unit eventually provided security for KBR contract mail carriers from the Joint Military Mail Terminal to other destinations as required with a high degree of effectiveness. This innovation and willingness to “soldier through” or solve by brute force can only take the capability so far.

⁷⁴ ARSTRAT, BFT Briefing, Peterson AFB, Colorado Springs, November 23, 2005.

⁷⁵ Motschlenbacher, Cecilia 1LT. 2006. Safe Passage. *Army Logistician*. Fort Lee, VA 34-37.



Figure 2, Gun Truck, 497th Transportation Company

Figure 2 depicts a theater-modified M923 5-Ton with SATCOM antenna, FM antenna, armored gun box, and fabricated armor panels on side and bottom in the 497th Transportation Company in Iraq. Weapons are not mounted in photo, but typically include M-2 .50, Mk-19 40mm Grenade Launcher, or M-240B. This photo of a 497th truck is from their tour in Iraq, May 2004-May 2005.⁷⁶



⁷⁶ Ibid, 34.

Figure 3, Gun Truck, Vietnam-era

For comparison this is a Vietnam Era Gun Truck, M800 series 5-ton (1969) with Armored Gun Box, Windshields, and doors (radio antennas not visible but systems were present).⁷⁷

The pictures of the up-armored gun trucks in prove that a CSS focus on these warfighting skills is not always in the forefront of senior leader's minds. Besides the addition of a Satellite Antenna on the OIF gun truck, there is almost no difference in comparison to the Vietnam era five ton. The Vietnam conflict lasted many years. CSS soldiers and units adapted to their environment and developed solutions that assisted in their own survival and completion of their assigned missions. The Army did not do a great deal in the development of long-term solutions for the Vietnam-era CSS warfighter (material, training, or doctrine), and after the war, focus on convoy protection was quickly forgotten. Hopefully, the application of OIF and OEF lessons learned can be fully incorporated into future DOTMLPF and transformational solutions.

As the Army proposes other high tech solutions and computer-based solutions to meet the challenges of the COE, appropriate levels of funding must be committed to reach the goals of CSS transformation. As discussed, many of the transformational solutions offered by logisticians in the Army and Joint community are based on material and hardware/infrastructure systems. While these systems that provide the Logistics Common Operating Picture and Total Asset Visibility are essential to the CSS manager, the acquisition and research and development system should not forget those who are responsible for delivering the supplies to the eventual customer. With the promise of extended lines of communication and "pulsed logistics," the Sustainment Brigades serving as critical distribution nodes or as the Theater Distribution Center will deliver a great percentage of logistics over the road. Innovative logistical solutions may attempt to

⁷⁷ Killbane, 44.

minimize danger to convoys (manned/unmanned aerial logistical platforms, precision airdrop, strategic throughput to an APOD), but for the foreseeable future wheeled vehicles will still carry a bulk of the overall logistics (either contracted or under military protection). In the COE, a secure rear area may not exist.

The current and future condition of the Army's tactical wheeled vehicle fleet is also a major concern. While the radically new FCS sustainment platforms are still in a developmental phase, the Army will rely on the current wheeled vehicles for the next twenty-five plus years. The initial FCS equipped Units of Action will still have "system enhanced" Humvees, HEMMT LHS, and FMTV 5-ton trucks. The Army G-4 analysis is that there is a requirement for 40,000 more tactical wheeled vehicles to support the modular force.⁷⁸ With the focus on a distribution based logistics system, this capability and projected shortfall must be managed (and resourced) very carefully. Current initiatives to extend the lives of many vehicles such as depot level refurbishment and reset programs are in progress to deal with this problem. Combat losses as well as the unexpected amount of mileage/hours on the current fleet in Iraq and elsewhere places additional strain on the systems.

Material solutions for transformation are even more critical on the COE battlefield. When Soldiers are provided the most technically advanced equipment, they maintain the advantage and enjoy increased levels of confidence.⁷⁹ The next chapter will provide the conclusions and recommendations on CSS transformation for the COE. The DOTM analysis in chapter three, as well as the historical and current operational lessons learned, will assist in providing the framework for the final thoughts on the evaluation of transformation initiatives.

⁷⁸ *We've got you covered.* Army G-4. p. 17 The Army currently has approximately 225,000 tactical wheeled vehicles in the fleet.

⁷⁹ The author, when assigned to a Special Operations unit witnessed this phenomenon. All of the Soldiers received the best in body armor, web gear, cold weather clothing, and weapons. They knew they had the best equipment and in turn made them more confident in their capabilities (even if they were not any better than the conventional units down the street).

CHAPTER 4

Recommendations for CSS Transformation

While a complete analysis of CSS Transformation in the U.S. Army is likely beyond the scope of this paper, recommendations for improvement are numerous. Transformational leaders and decision makers in the Army must internalize Dietrich Dorner's concepts in *The Logic of Failure*. He offers that, "human planning and decision-making processes can go awry if we do not pay enough attention to possible side-effects and long term repercussions, if we apply corrective measures too aggressively or too timidly, or if we ignore premises we should have considered."⁸⁰ His recommendations are that through a more thorough understanding of confusion, misperception, and shortsightedness, leaders will be better problem solvers and learn from failures they were unable to avert.⁸¹ Those who make important decisions should welcome a critical evaluation of every process and suggested improvements for those problems. As the U.S. Army evaluates itself and how it will support and sustain future combat operations, there are a plethora of good ideas from the tactical to the strategic level. Modularity allowed/allows leaders at the tactical level to decide, with some flexibility, how they are organized and their input helps drive the force development process even more than in the past. New doctrine and organizations facilitate future simulations based on the analysis of conflict to date. Technology and net-centric warfare will enable both the new material and organizations. Training of the CSS soldier is even more important in the COE; not only must they master ever more sophisticated technical systems, but also they may have to fight in order to deliver their supplies or provide maintenance support.

⁸⁰ Dorner, Dietrich. 1989. *The Logic of Failure*. Metropolitan Books, NY, NY. 2.

⁸¹ Ibid, 10.

The “Haves” and the “Have-nots” (Echelon Above Brigade Training Shortfalls)

In the pre-OEF and OIF Army, certain forces were “haves” and others were the “have-nots.” Typically, units arrived at their status because of their Authorized Level of Organization (ALO). The lower the ALO, the faster the unit would receive spare parts, be priority on personnel and equipment fielding, etc. Especially in relation to CSS forces and the fielding of force protection equipment, vehicles, communications systems, and command and control architecture, the Echelons Above Corps units were the last to receive it. Perhaps there was no other unit in the Army better at maintaining Patriot missile systems, but it is a generally accepted fact that the 507th Maintenance Company was not up to par on their collective unit training and general warrior tasks. They were not resourced to conduct the training, doctrinally should have been farther in the rear, and were not equipped to handle the challenges of the modern battlefield. Many Echelon Above Corps (EAC) units faced similar conditions and generally speaking were the “have-nots” in the CSS community.

As CSS forces undergo transformation, the primary effort focused on the Brigade Combat Teams (late 2003 to late 2005). In effort to organize more capable BCTs, logistical resources were pushed down from the Division Support Commands to provide additional capability such as water production, ammunition handling, additional transportation, etc. In a briefing to the Command and General Staff College faculty, LTG Ann Dunwoody, the Army G-4, stated that 46% of the active force’s CSS resources are now in BCTs.⁸² Perhaps with sufficient justification, this CSS capability gives the BCTs greater flexibility and capability for sustainment and distribution.

⁸² Dunwoody, Ann, LTG. Brief to CGSC Faculty. Fort Leavenworth, KS, February, 2, 2006.

There is a new term to describe all the logistical assets that are not organic to a Brigade Support Battalion/BCT. Echelon Above Brigade (EAB) now refers to all Sustainment Brigades, Sustainment Commands, and associated CSSBs. With the perhaps proper focus on developing the BCTs first, the Army must ensure that the continuing transformation for the EAB logistics forces is a high priority. The Army G-4s focus areas will provide some Measures of Effectiveness to determine how well these EAB units conduct CSS, but how are they evaluated or prepared to execute the sustained combat environment of the “Long War” and other campaigns in the COE?

Doctrine, Organizational Design, Training, and Material are only some of the issues that force developers and operational units are currently struggling with. Funding for many of the programs and material is always in jeopardy (when evaluated against many other FCS programs for example). With the Draft publication of a Sustainment Brigade manual, doctrine is slowly moving forward to provide a framework for future Sustainment Brigade leaders and soldiers to follow. Perhaps the largest disparity between BCT CSS units and EAB units is the ability to participate in resourced and externally evaluated collective training. While select few EAB units will participate in Combat Training Center rotations, many must resource and conduct their own live fire, force on force, and collective training scenarios and programs (primarily at home station).

The Need for an EAB CSS Training Center?

The development of a CSS focused Training Center(s) would enable EAB logistics units to receive the same level of training and proficiency that BSBs get at JRTC/NTC/CMTC (ideally). The purpose of such a facility would be to provide a training program from company to battalion level that enables the unit to fully execute its combat skills collective training. The “re-greening” of combat focused training for EAB units would also include more force on force operations, squad and platoon leader development and decision making, as well as the

incorporation of medical tasks. Commanders would determine what training and level of proficiency their units desired/needed. Ranges specifically designed and established for CSS functions would facilitate a maximum number of unit throughput if required (most major CONUS installations have only one or two convoy/static defense capable ranges which are always in high demand). With the extensive knowledge and experience of CSS officers, non-commissioned officers, and soldiers because of their deployments to OIF and OEF, a capable cadre is available. The recommendation for the creation of two such training centers would be of tremendous force protection and combat capability advantage for the primarily CONUS based Army. With one CSSTC on the central west coast (Pinon Canyon/Fort Carson), and the other on the East Coast (Fort Pickett/Fort Bragg), many CSS units would be inside of convoy driving range, which would serve as another collective training opportunity. Such resources would not come without costs, not just in their creation and execution, but also in the true CSS assets “lost” during the period of actual training⁸³. With the overall goal of better preparing CSS soldiers for the COE, these costs should be rationalized and absorbed following a more thorough examination.

The Army should take action to ensure EAB logistics units are not neglected as EAC units were in the Army of Excellence.⁸⁴ While costly, the CSS community would enjoy tremendous benefits from CSSTCs specifically oriented on the training CSS units wish to conduct. The next section of the paper provides concluding thoughts on CSS transformation for the Contemporary Operating Environment. It evaluates proposals from previous sections of the paper and discusses Army CSS transformation initiatives.

⁸³ “Lost” CSS assets refer to the CSS tasks normally accomplished by the units at their home station. For example, supported units would not receive their normal maintenance support, or Supply Support Activities would shut down for a period of time while the units conducted their CSSTC rotations. This would require careful management and some give and take on the part of the customer units. Alternatives include the use of contractors to fill the void left at home station or a rotation of soldiers throughout the actual CSSTC rotation.

⁸⁴ Army of Excellence is the title of the general Army organization of the late 1990s into 2003 (pre-transformational).

Final Azimuth Check on Logistics Transformation

The Contemporary Operating Environment poses numerous challenges for the current and future warfighter logistician. The Army community realizes this and even acknowledges these challenges in the most current doctrine. From Chapter 1, FMI 4-90.1 HBCT Logistics:

1-6. Hence, there is a definite necessity to resource basic Soldier skills training to ensure that the logistician Soldiers and leaders are competent in combat skills of convoy defense, patrolling and perimeter defense, and the use of the most up-to-date enabling technology to integrate the force protection and technical sustainment functions into overall tactical-level sustainment operations within logistics units.

1-7. Whereas Soldiers and leaders must be proficient in their technical and warrior skills, technology only allows Soldiers and leaders to do both of these Soldier requirements better. Soldiers and leaders must first master technical and warfighter skills and field craft before they can become digital experts

1-8. Digitization will not make up for poor training or poor proficiency on basic war-fighting skills. No longer can logisticians expect the combat arms units/Soldiers to ensure their security without active participation by the Soldier and their leaders who happen to be logisticians. All Soldiers will be responsible for their personal security and fighting as part of a combined arms fight when necessary.⁸⁵

While this is a long quote, it sums up many goals of CSS transformation for the COE. If the Army can simply deliver on the proposals in these few short paragraphs, CSS forces of the future will benefit immensely. Implications to execute these ideas fall across the DOTMLPF spectrum and include the entire Force Development Process.

New programs such as the Rapid Fielding Initiative (RFI), and Rapid Equipping Force (REF) address shortfalls in both personal and unit equipment in effort to deal with the operational environment primarily using commercial off the shelf (COTS) technology. CSS leaders must get their soldiers not only the latest CSS automation equipment, but also the proper warfighting tools to defeat the enemy. Night vision for the Sustainment Commands should be as important as the

⁸⁵ Department of the Army. 2005. FMI 4-90.1, *Heavy Brigade Combat Team Logistics* Washington, DC: U.S. Army. Chapter 1.

latest BCS3 hardware. While the intention is not turn the Sustainment Brigades into additional maneuver elements for the infantry battalions, the CSS soldiers must be familiar and comfortable with the basic fire and maneuver concepts in addition to their standard logistics tasks. While many unit leaders wanted to train these tasks, the lack of resources (money, equipment, time) prevented units from reaching the standard they needed to achieve.

Combat skills training for the COE should be a priority for the CSS community. Whether the training occurs at home station, a CTC, or a proposed CSSCTC for EAB units, additional incorporation and focus on the high threat COE scenarios is essential. The goal of such training should result in the unit capable of success in platoon and company night live fire exercises. From an idealistic perspective, systems such as Blue Force Tracker, FBCB2, and Movement Tracking Systems should be resourced for the entire CSS force. Armored vehicles with significant force protection and firepower capability must be developed and subsequently built into unit organizations. The idea for armored vehicles in CSS units is not a new concept; the Army Concept Team-Vietnam came up with the same recommendations with the XM-706 (very similar to current M1117)⁸⁶.

⁸⁶ Spenard, Thomas M., MAJ. *Force protection for distribution based-logistics in assymmetric warfare*. Thesis, School of Advanced Military Studies, United States Army Command and General Staff College. Fort Leavenworth, KS. 2005, 51.



Figure 4, M1117 Armored Security Vehicle

The M117 Armored Security Vehicle, currently fielded to MP units, would be a force multiplier for CSS units in peace and war. It could provide convoy protection and security, support battlefield circulation, and provide personnel transport functions in high threat areas. Superior communication, command and control, and situational awareness can facilitate distribution management and will assist in total asset visibility.⁸⁷ The COE also includes the possibility of major combat operations in state on state conflict. In a conventional battlefield construct, M-117s could provide base defense commanders with the organic capability to defeat a level two threats, as they could effectively resource their own response force.

The U.S. Army CSS soldier has a long history of adapting and accomplishing the mission by “brute force.” With a focus on transformation and the resources to implement such a transformation, efforts to identify and rectify these shortfalls should be a priority. There are now numerous soldiers and leaders with combat experience and knowledge of what and how to change units. Modular units stood up and deployed to a combat zone in short order. These change agents are willing to accept new challenges and make their Army more capable. Whether the concept is Sense and Respond or Improving Force Reception capabilities, the Army is prepared to

⁸⁷ Ibid, 51.

execute change. The benchmark for transformational concepts should be the current and future COE doctrine. To ensure the success and survival of future CSS soldiers, senior leaders should invest more in the training of the future force and enabling them with more up to date force protection equipment. The development of best business practices and enhanced CSS technical systems are important, yet our soldiers must survive to support. Many if not all of the CSS transformation programs and goals have merit and warrant execution. Smart leadership decisions must determine which are the most critical for implementation. While the CSS community must continually strive for always-greater technical innovation, distribution capability and asset management, leaders must always remember to prepare the soldiers who will deliver and execute the CSS support mission properly. Providing them with the best equipment, training, and protection should be the utmost priority.

BIBLIOGRAPHY

Books

- Dorner, Dietrich. *The Logic of Failure*. Metropolitan Books, NY, NY. 1989.
- Boyne, Walter. *Operation Iraqi Freedom, What Went Right, What Went Wrong and Why*. Tom Doherty Associates LLC. NY, NY. 2003.
- Fontenot, Gregory, E. J. Degen LTC, and David Tohn LTC. 2004. *On Point, the United States Army in Operation Iraqi Freedom*. Fort Leavenworth, KS: Combat Studies Institute Press. 2004.
- Knox, McGregor and Murray Williamson. *The Dynamics of Military Revolution 1300-2050*. Cambridge University Press. Cambridge, UK. 2001.
- Magruder, Carter. *Recurring Logistic Problems As I Have Observed Them*. Center for Military History, United States Army. Washington, DC. 1991.
- Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations*. 6th ed. Chicago: University of Chicago Press, 1996.
- VanCreveld, Martin. *Supplying War, Logistics from Wallenstein to Patton*. Cambridge University Press, Cambridge, UK. 1977.

U.S. Government Publications

- C-3 Training, Combined Land Forces Component Commander (3rd Army), Military Professional Resources Inc. *CFLCC Convoy Leaders Handbook*. Camp Doha, Kuwait: U.S. Army. 2004.
- Center for Army Lessons Learned. *MRE Operation Enduring Freedom Page*. June 25, 2005 2005. Internet on-line. Available from:
<https://call2.army.mil/focus/ctc/iframe/mre2_oef_linklist.asp>. [August 15, 2005].
- Combined Arms Support Command. *Sustaining a Campaign Quality Army with Joint and Expeditionary Capabilities*, White Paper on Logistics Support to the Modular Force. Ft. Lee, VA. 2005.
- Department of the Army. Field Manual-Interim 4-90.1, *Heavy Brigade Combat Team Logistics*. Washington, DC: U.S. Army. 2005.
- Department of the Army. NO DATE. *The Sustainment Brigade*, FM 4-93.2 (Coordinating Draft). Washington DC.
- Department of the Army. *Future Combat Systems Organization and Objectives White Paper* (Coordinating Draft). Washington, DC. U.S. Army. 2005.
- Department of the Army. Training Circular 63-1, *Handbook for Combat Service Support Live Fire Exercises*. Washington, DC: U.S. Army. 2004.
- Department of the Army Pamphlet 350-38, *Standards in Weapons Training*. FY 2006.

- Department of the Army. *How the Army Runs, A Senior Leader Reference Handbook*. Carlisle Barracks, PA. 2005.
- Department of the Army. *Combined Arms Support Command Organizations and Functions. TR_10-5-5*. Fort Lee, VA. 2005.
- Department of the Army. Field Manual 7-100, *Opposing Force Doctrinal Framework and Strategy*. Washington, DC. 2003.
- Department of the Army. Field Manual 3-90. *Tactics*. Washington, DC. 2001.
- Department of the Army. *We've got you Covered, Army Logistics, Delivering Material Readiness to the Army*. Washington, DC. 2005.
- Department of the Army. Fort Knox Supplemental Manual 71-8, *Armor and Cavalry Reference Data, Brigade Combat Teams*. Fort Knox, KY. 2005.
- Department of the Army Pamphlet 350-38, *Standards in Weapons Training*. Washington, DC. FY 2006.
- Department of the Army. FM 4-0, *Combat Service Support*. Washington, DC. 2003.
- Department of Defense. *Defense Acquisition Acronyms and Terms*. Defense Acquisition University. Fort Belvoir, VA. 2003.
- United States Joint Forces Command. *The Joint Operational Environment-Into the Future*. Suffolk, VA. 2005.
- Various. 101st Airborne Division Lessons Learned, Operation Iraqi Freedom. Fort Campbell, KY. 2003.
- Various. 2003. 3rd Infantry Division After Action Review, Operation Iraqi Freedom. Fort Stewart, GA. 2003.

Papers and Monographs

- Bivona, Stephen, Steve Geary, Barry Holland, Joe Mulherin, John Murphy, and Mary A. Wagner. *Objective Assessment of Logistics in Iraq, DUSD (L&MR and Joint Staff (JSJ4) Sponsored Assessment to Review the Effectiveness and Efficiency of Selected Aspects of Logistics Operations During Operation Iraqi Freedom*. McLean, VA: Science Applications International Corporation. 2004.
- Carlisle, Heather J., CPT, *Convoy Defense Training for Logistics Units in today's non-linear, non-contiguous battlefield environment*. Thesis. Florida Institute of Technology, Fort Lee, VA. 2004.
- Chin, Bobby. *Information Paper, Sense and Respond Logistics*. U.S. Army Logistics Transformation Agency. Fort Belvoir, VA. 2005.
- Feickert, Andrew. *U.S. Army's Modular Redesign: Issues for Congress*. Washington, DC: Congressional Research Service. Database on-line. Available from CRS Web, CRS, RL 32476. 2005.
- Glenn, Russell W., Steven L. Hartman, and Scott Gerwehr. 2003. *Urban Combat Service Support Operations, The Shoulders of Atlas*. Santa Monica, CA: Rand Corporation. DTIC, MR-1717-A

- Hakola, Matthew B. *An exploratory analysis of convoy protection using agent-based simulation*. Thesis. Naval Postgraduate School, Monterey, CA. 2004
- Killblane, Richard. *Circle the Wagons: The History of U.S. Army Convoy Security*. Combat Studies Institute, Fort Leavenworth, KS. 2005.
- Maccagnan, Victor LTC. *Logistics Transformation-Restarting a Stalled Process*. Thesis. United States Army War College, Carlisle Barracks, PA. 2005.
- Peltz, Eric, John M. Halliday, and Steven L. Hartman. *Combat Service Support Transformation, Emerging Strategies for Making the Power Projection Army a Reality*. Santa Monica, CA: Rand Corporation. 2003.
- Smith, Sydney A., MAJ. *Learning beyond the buzzwords: Developing the adaptable, competent CSS soldier*. Thesis, School of Advanced Military Studies, United States Army Command and General Staff College. Fort Leavenworth, KS 2005.
- Spenard, Thomas M., MAJ. *Force protection for distribution based-logistics in assymetric warfare*. Thesis, School of Advanced Military Studies, United States Army Command and General Staff College. Fort Leavenworth, KS. 2005.
- Starnes, Glenn T COL. *Leveraging the Media: The Embedded Media Program in Operation Iraqi Freedom*. Thesis. U.S. Army War College, Carlisle Barracks, PA. 2004.
- Taylor, David MAJ. *The role of the Joint Readiness Training Center in training the future force*. Thesis. United States Army Command and General Staff College. Fort Leavenworth, KS. 2005.

Articles and Periodicals

- Christenson, Claude LTG. "Enhancing Logistics Readiness". *AUSA 2005-2006 Army Green Book*. October 2005.
- Curtis, Lance, MAJ. "Support till you Bleed". Unpublished. 2003.
- Graves, Gregory H. "Obstacles to CSS Transformation". *Army Logistician*. (July/August 2002).
- Mann, David Scott, MAJ. "Every Soldier a Rifleman". *Army Logistician*, (January/February 2004).
- Motschlenbacher, Cecilia, 1LT. "Safe Passage". *Army Logistician*. (January 2006).
- Roosevelt, Ann. Logistics in Iraq Show Signs of Transformation, Experts Agree. *Defense Daily*. December 8, 2003.
- Rutherford, Wilson. and William Brame. Brute Force Logistics. *Military Review*. 1993.
- The Sense and Response Logistics Capability and Operation Iraqi Freedom. McLean, VA: Science Applications International Corporation. 2004.
- Thurmond, Suzi.. "Analyzing the lessons of OIF Distribution". *Army Logistician*, (July/August 2004).

Interviews and Briefings

- Dunwoody, Ann, LTG. Brief to CGSC Faculty. Fort Leavenworth, KS, February 2, 2006

Poole, Richard J., COL. 2005. Address to QM Officers. Fort Leavenworth, KS, August 17, 2005.

Smith, Stephen, LTC. Senior Logistics Trainer at NTC. Phone and E-mail. October 21, 2005.

Presentations

Dillon, COL. 2003. Focused logistics, OIF review. Power Point Presentation. Combined arms support command, CASCOT, Fort Lee, VA.

Mahan, Chuck, LTG. 2003. CSS Commanders Conference, OIF Lessons Learned, DA G-4. Microsoft Power Point.

Vevasis, Anthony J., MAJ. 2005. CSS Live Fire Exercises (Delivered to Pre-Command Course Attendees). Microsoft Power Point.

U.S. Army Operation Iraqi Freedom Study Group. U.S. Army Operation Iraqi Freedom, Observations Quick Look. Center for Army Lessons Learned. Accessed from: <https://call2.army.mil/focus.oifsg.asp> on January 11, 2006.

Miscellaneous

Desert Fox background information. Accessed from: http://www.defenselink.mil/specials/desert_fox/ on January 3, 2006.

Department of the Army. Department of the Army Historical Summary, 1990 through 1996 Accessed from: <http://www.army.mil/cmh/books/DAHSUM/1996/ch04.htm> on December 9, 2005.

Global Economy; GDP for 2000 and 2003. Accessed from: http://www.geohive.com/global/geo.php?xml=ec_gdp1&xsl=ec_gdp1 on October 26, 2005.

MTOE information for 407th BSB, 82nd Airborne Division. Accessed from <https://webtaads.belvoir.army.mil> on January 27, 2006.

The Army Campaign Plan. Accessed from: http://www.army.mil/thewayahead/acppresentations/4_3.html on January 6, 2006.

United States Joint Forces Command. 2003. USFCOM, Army Defining the Joint Operation Environment. Accessed from: <http://www.jfcom.mil/newslink/storyarchive/2003/pa060903.htm> on December 9, 2005.